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ABSTRACT

The relationship between various aspects of mother-child interaction and the language performance of young disadvantaged Negro children is assessed in this study. An exploratory survey was conducted to determine if mothers in socially disadvantaged families were willing to enter a parent participation preschool program. Subjects for this study, selected from families who were willing to participate, were 53 children ages 2 1/2 to 3 1/2 years, second or later in birth order, and their mothers. Data were collected by language testing and by structured order, and their mothers. Data were collected by language testing and by structured observation of mother-child interaction scored by two raters on various scales. Significant positive correlations were found between the language test scores and the mothers' acceptance, use of praise, and rewarding cf independence, and the child's independence and verbal initiative. Mothers' negative actions such as use of criticism and discouragement of verbalizations were reflected in children's lower scores in language performance. Some sex differences were shown in test scores and in mother-child interaction. Much variation was shown among the sample children. Recommendations are given for the use of the measure of Mean Length of Utterance. (NH)

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Final Report

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LANGUAGE DEVELOPMENT OF SOCIALLY DISADVANTAGED PRESCHOOL CHILDREN

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Summary

This two-part research project was related to an experimental program involving socially disadvantaged preschool children.

Part I. Parent Survey

The first part was an exploratory survey to determine whether or not mothers in socially disadvantaged families in a given area were willing to enter a parent participation preschool program. A social worker visited over 100 families in a California community which has a high proportion of low income and minority group families. Of approximately 70 families who met all the requirements, 62 families indicated a definite intention to enter the preschool program.

Part II. Mother-Child Interaction and Language Development

The second part was an attempt to assess the relationship between several aspects of mother-child interaction and the language performance of young disadvantaged children as represented by a low-income sample. Subjects were 53 children ages $2\frac{1}{2}$ to $3\frac{1}{2}$, second or later in birth order, and their mothers.

The Peabody Picture Vocabulary Test was administered to the children and a language sample secured in the home was analyzed for Mean Length of Utterance in morphemes. A structured mother-child interaction session was observed consisting of six tasks: (1) telephone conversation; (2) jigsaw puzzle; (3) toy dog to stimulate conversation; (4) matching animals and homes; (5) wild animal pictures for mother to discuss with child; (6) information form for mother.

Two raters scored the mother-child interaction on 16 scales. The mothers were rated for: affectionateness, acceptance, praise, criticism, rewarding of independence, restriction of independence, rewarding of dependency, pressure for achievement, use of reasoning, encouragement of child's verbalizations, discouragement of verbalizations, and preoccupation with questionnaire. The children were rated for independence, dependency, initiative in verbal communication, and attention seeking during mother's preoccupation.

A multifacet analysis of generalizability was used as a reliability measure after 23 subjects were rated and after all 53 were rated. This guided some scale revision and three scales were abandoned on which reliability was unsatisfactory. Partial correlations were computed of mother-child interaction ratings with language measures, influence of age removed from each variable.

Principal findings:

There were significant positive correlations between the Peabody Picture Vocabulary Test scores and the mother's ratings on affectionateness,

acceptance, praise, rewarding of independence, reasoning, and encouragement of verbalizations, and the child's ratings on independence and verbal initiative. PPVT scores were negatively correlated with the mother's ratings on discouragement of verbalizations and preoccupation with the questionnaire.

There were significant positive correlations between the Mean Length of Utterance scores and the mother's ratings for acceptance, praise, and rewarding of independence, and the child's ratings on independence, verbal initiative, and attention seeking during the mother's preoccupation. MLU scores were negatively correlated with mother's ratings on restriction of independence. The problems encountered in securing and analyzing the language samples of such young Negro children probably reduced the validity and reliability of the MLU.

The girls scored significantly higher on length of utterance than the boys, but not significantly higher on vocabulary. There were a higher number of significant relationships between mother-child interaction and vocabulary for boys than for girls. Mothers of the older boys showed more affection, more acceptance, more praise, and less criticism with these boys than mothers of the younger boys did. However, mothers of the older girls showed less affection, less acceptance, less praise, but more criticism with these girls than mothers of the younger girls. No significant effects were due to the mother's education, child's ordinal position, number of children in the family, or father's presence in the home.

The most powerful variables associated with language performance were the mother's acceptance, use of praise, and rewarding of independence, and the child's independence and verbal initiative. A strong possibility exists of a mother-child dyadic relationship in which each influences the other. The 53 children showed much variation, suggesting the danger of applying generalizations to all disadvantaged children. Recommendations were made regarding the Mean Length of Utterance measure and suggestions for teachers and parents of young disadvantaged children.

Background for the Study

Problem

As the situation of socially disadvantaged children has been recognized in our society, their language development has been emphasized. As disadvantaged children start to school, learning problems often occur. A cumulative deficit problem results as their education advances. Language tends to be the area of greatest inadequancy in testing and school situations. National, state and local efforts are being made to bring the disadvantaged up to par educationally with middle-class children. Enriched preschool programs have been set up as part of the attempt to correct deficits believed to result from impoverished environments.

It is generally recommended that preschool programs for socially disadvantaged children involve the parents, yet many programs are being set up which involve the parents very little or not at all. This author has hypothesized that a parent participation-education preschool program with an enriched curriculum would be the most effective approach in overcoming the language retardation. To determine the feasibility of such a proposed experimental program, the first part of this study was an attempt to find out whether mothers in socially disadvantaged families were willing to enter a parent participation-education program offering an enriched curriculum for their preschool children.

It has been maintained that the socially disadvantaged child is inadequate in language development because his interaction with his mother is more limited in amount and poorer in quality than that of the middle-class child. Because the typical young child who is learning to talk spends more time with his mother than with any other person, the mother-child interaction and relationship is an obvious focus in searching for factors influencing the nature and rate of the child's language development. Specifically we want to know the nature of the mother-child interaction experienced by disadvantaged children who show a relatively high level of language development and by disadvantaged children who show a relatively low level. If the factors most highly correlated with a high or low level of language development can be determined, this information can be used in several ways: (1) educators may be able to devise programs to promote or counteract such factors and attempt to make up inadequacies; and (2) parent education programs and mass media can be used to encourage home and family activities which seem beneficial to the child's language development. This effort would help to alleviate the educational problems these disadvantaged children suffer in the schools.

Related Research and Rationale

(a) Language development in the socially disadvantaged

Forty years ago, in her pioneer study, McCarthy (1930) found a significant relationship between socio-economic status and language development. Later studies gave further support. Upon reviewing the literature in 1954, McCarthy states: "There is considerable evidence in the literature to indicate that there exists a marked relationship between socio-economic status of the family and the child's linguistic development" (p. 586). Some of the studies which have shown that children of lower socio-economic levels show a retardation in relation to various aspects of language development in comparison with children of higher socio-economic levels have been Day (1932), Davis (1937), Beckey (1942), Irwin (1948 a, b), Templin (1957), and Deutsch (1965). Bernstein (1961) and Whiteman et al. (1967) have been among those who have found that language is one of the principal areas of retardation in socially disadvantaged children.

All children disadvantaged by social and economic situations do not show the same developmental characteristics, although there is a tendency in much of the literature to lump all "disadvantaged" together. However, language deficiencies have been found in samples from several different ethnic and sociological groups which have been studied by different researchers. Studies of various groups of children have led to descriptions of their language. Bernstein found that the language patterns among working-class youth in England were characterized by: short, grammatically simple, often unfinished sentences with poor syntactical form; simple and repetitive use of conjunctions; little use of subordinate clauses; rigid and limited use of adjectives and adverbs; and infrequent use of impersonal pronouns. In contrast, middle-class language was more complex and accurate in syntax, and both the frequency and range of various parts of speech were greater (1961, p. 297). Davis (1937) found that articulation was poorer among the lower socio-economic group in the samples she studied, as did Templin (1957). Deutsch and Brown (1964) found a lower vocabulary range among the lower socio-economic samples in groups they studied in New York City.

Studies reported by Silverman have indicated that socially disadvantaged children tend to have a limited vocabulary range, restricted language usage with much communication through gestures and other non-verbal means, and restricted and incorrect grammatical form (in Bloom, Davis, Hess, 1965, pp. 70-71). Deutsch has found signs of impoverishment in the language of the culturally deprived, mainly in its formal, abstract, and syntactical aspects (1963, pp. 173-74). This retardation is similar to that among institutionalized children, and the similarity of the two has led to speculations that a common factor is involved.

Recently controversy has arisen regarding the language development of disadvantaged groups. Labov, a linguist, has studied ghetto speech in Harlem. He states that a number of linguists, among them

William Stewart, Raven McDavid, Albert Marchwardt, and Roger Shuy, agree with his rejection of verbal deprivation and deficit theory in relation to urban ghetto speech. Labov contends that non-standard Negro English is not deficient but is a separate system from standard English in some respects, and that it is capable of dealing with abstract and complex material (1969, p. 74). Questions have focused upon language tests and testing situations including the meaning of the test situation to the disadvantaged child, test biases, and standards and criteria of judging acceptable or adequate language.

Several investigators who tend to subscribe to the deprivation theory have tried to determine what is lacking in the situation of many socially disadvantaged which causes language deficit. Deutsch (1964) has been among those who have pointed to the family environment and interaction. Family interaction data gathered by Deutsch (1965) indicates that there is a dearth of organized family activities in a large number of lower-class homes as compared with middle-class homes. "As a result, there is less conversation, for example, at meals, as meals are less likely to be regularly scheduled family affairs" (p. 80).

Milner (1951) studied the social backgrounds of first-grade Negro children, comparing the backgrounds of those who scored high on language tests with those who scored low. She found that those who scored high had participated more in family conversation and had received more demonstrations of affection. Lower-class families were found to be less verbal than upper-class families, with fewer books, less reading to the children, and less verbal interaction with the parents. Maas (1951) reported that lower-class parents were often inaccessible to the communications of their children. Walters, Connor and Zunich (1964) found fewer interactions between lower-class mothers and their children.

Studies of a number of different groups have shown that the disadvantaged children studied typically spend less time in direct interaction with their parents than do middle-class children; their parents do not have the skills or language to foster language and cognitive development effectively, and the children do not receive adequate corrective feedback when they begin speaking (Bloom, Davis and Hess, 1965). Raph concluded in her summary of studies that the process of language acquisition for socially disadvantaged children, in comparison with middle-class children, "is more subject (a) to a lack of vocal stimulation during infancy, (b) to a paucity of experiences in conversations with more verbally mature adults in the first three or four years of life, (c) to severe limitations in the opportunities to develop mature cognitive behavior, and (d) to the types of emotional encounters which result in the restricting of the children's conceptual and verbal skills" (1965, p. 396). This points to the importance of the mother's role in language development which is discussed below.

Labov maintains the above types of studies provide a "slender thread of evidence" and that there has been "very little direct observation of verbal interaction in the Negro home" (1969, p. 61). To what extent do disadvantaged homes share the characteristics described above?

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Have generalizations been made on the basis of too little evidence? Levenstein states: "But on the basis of observation of some extremely disorganized low-income families, educators may be too ready to assume that all low-income families lack the capacity to provide the elements essential to very young children's learning" (1970, p. 427).

(b) Parent participation-education programs

Although the proposal for a parent participation-education program was not a part of this study, the first part of this research study is directed toward it and feeds into it, so this type of program should be described briefly.

Bloom, Davis and Hess (1965) analyzed various studies involving enriched nursery school programs for socially disadvantaged children such as those of Deutsch (1962) in New York and Weikart et al. (1964) in Michigan. Following their analysis, they recommended that every effort be made to have parents serve as part-time assistants and observers in these schools. Other investigators recommend parent participation and education, yet until the recent emphasis by Head Start, parent involvement has been minimal, non-existent or inadequately planned in many programs.

The parent participation-education nursery school (often called the parent cooperative) has become a popular program in various states. The usual pattern is a nursery school program in which the parent participates one-half day a week in the program and attends a weekly parent education class. There have been no objective studies published, to the knowledge of this author, of the values of this type of educational program but their practical value is attested to by the fact that there are over 300 in California alone, most of them initiated by parent groups. These serve upper middle-class parents principally but their values should hold true, at least in part, for the socially disadvantaged. The motivation among lower-class parents to participate in such programs may be less.

This investigator had directed parent participation nursery schools for six years, including one for cerebral palsied children for three years (Headley and Leler, 1960) and one in which about two-thirds of the families were Negro. She observed that parents progress in the direction of increased understanding of child behavior and development and in more positive relationships with their children through participation in such a program. This progress is not achieved through lectures and advice but primarily, it is thought, in the modeling provided by the professional teacher in the preschool program as she works with the children, through the participation of the parents as they try out methods of working with the children, and through discussions of their observations and experiences.

It was this investigator's hope that an experimental research program could be set up with parent participation as a variable. However, since motivation on the part of socially disadvantaged parents to

enter participation programs is sometimes questioned, visits were made to the homes by a social worker to determine their willingness to participate before the program was set up.

(c) Influence of mother-child interaction and other factors on language development

Our present knowledge of language development in early childhood has come from: biographical studies parents have made of children's language; longitudinal studies, notably those of Roger Brown and associates (Bellugi and Brown, 1964; Brown and Bellugi, 1964); and measures of the language of groups of children made by such investigators as McCarthy (1930) and Templin (1957).

These studies describe the rapid growth of vocabulary in the early years, the shifts in proportion of various parts of speech, the increase in complexity, and the expansion in mean length of utterance. For example, a child of 18 months is in the one-word sentence stage and a year later is speaking average utterances of two to three words (McCarthy, 1954, p. 550). The period from two to four years of age is one of very rapid language development. Differences in individual development are related to such factors as intelligence, socio-economic status, sex, and position in the family.

Several factors believed to be related to language development are: signal-to-noise ratio, language models, feedback, reinforcement, and affective relationship.

Signal-to-noise ratio

Cynthia Deutsch (1967) hypothesizes that the noisy environment and the weak signal conditions under which some slum children live predispose them to learn early to tune out auditory stimuli so that they tune out both meaningless noise and meaningful stimuli such as language. Data are not yet sufficient to confirm or disconfirm this but there is some support for this hypothesis.

Language models and verbal stimulation

Children need verbal stimulation both in quality and in quantity. In 1934 Vygotsky (1962 translation) proposed that the development of language is dependent largely upon the availability of adults for verbal interaction with the child. Chomsky and Miller have stated: "Mere exposure for a remarkably short period is apparently all that is required for a normal child to develop the competence of a native speaker" (1963, p. 276). A number of processes are involved in the child's learning of language through exposure.

Imitation plays an important part in the child's language development. Children imitate language as they do other adult behavior. According to Jenkins and Palermo, children are reinforced for imitating and "very soon the behaviors involved have functional properties for them as instrumental acts" (1964, p. 162). It is possible then that imitation and reinforcement work together in language

acquisition. Bandura and McDonald conclude that imitation stimulates novel responses when "there is no reliable eliciting stimulus apart from the cues provided by others as they perform the behavior" (1963, p. 375), and it shortcuts the otherwise gradual approximations to the mature response.

According to Church, "the role of imitation is not the emission of particular responses which can then be reinforced and stabilized or 'shaped,' but as an aid to perception and feeling" (1961, p. 35). Church further states: "But in spite of the substantial amount of learning by imitation, the greater part of the child's vocabulary is learned by simple absorption" (p. 87). Imitation plays little part in the learning of grammatical and syntactical rules.

Corrective feedback has been mentioned as important in language development (Ausubel, 1964; Bloom, Davis and Hess, 1965). John and Goldstein emphasize that "of particular importance is the amount of attention to the child's own attempts at early verbalizations: the opportunity made available to the child to learn by feedback, by being heard, corrected and modified--by gaining 'operant control' over his social environment as he uses words that he has heard" (1967, p. 173). Some educators, including this writer, believe that immediate correction of a child's speech may inhibit language and lower his self-esteem but that subsequent wording of a phrase correctly may suffice. Feedback need not always be corrective, but may be modifying or expanding.

Brown (1965) and associates have discovered in their longitudinal studies of language development that imitation and feedback work together in stimulating language development. They found that very young children frequently imitate their mothers' utterances but they omit some words or morphemes from the mothers' longer utterances. The result is "telegraphic speech" which contains the more essential morphemes, such as nouns, main verbs, and adjectives, and omits the more non-essential elements called functors which include articles, inflections, auxiliary verbs, and conjunctions. When mothers respond to these imitations, they expand the child's utterances and add the omitted morphemes. Slobin (1965) found that the child's subsequent imitation of the mother's expansion is frequently longer than his first, and a progression is thereby made.

Brown and Bellugi conclude that this expansion process is powerful assistance for the acquisition of grammar because the child "encodes additional meanings at a moment when he is most likely to be attending to the cues that can teach that meaning" (1964, p. 143). Cazden suggests that the sequencing of the parent's responses is done under the guidance of the child and that this constitutes "a case of mutual feedback where each participant in a dynamic system guides and influences the other" (1965, p. 18). However, she found in her experimental treatment groups that adult modeling of well-formed sentences was more effective in stimulating language development in a group of socially disadvantaged children than were adult expansions of children's utterances in a matched group.

The concept of reinforcement or operant conditioning has been a central one in theories of language development held by psychologists, following Skinner's writings. According to Skinner (1957), the child babbles random sounds which are relatively unpatterned. These are selectively reinforced and the child's utterances gradually assume the forms of his native language. Although this is an important factor, it has limitations. John and Goldstein state that "such a model presents certain difficulties in that it emphasizes a one-to-one relationship between stimulus and response" (1967, p. 166). They point out that the word to be learned is usually embedded in a sentence and its referent (the object) is surrounded by numerous extraneous features in the environment. Learning labels requires selective attention--the inhibition of irrelevant aspects.

Church presents several arguments in questioning reinforcement theory as an adequate explanation of language acquisition:

(1) parents often reinforce babbling indiscriminately;
(2) one can increase the volume of babbling the baby does but there is no evidence that one can selectively reinforce particular babbles;
(3) babbling stops when speech begins; the two are discontinuous forms of behavior;
(4) the child's expressions do not always elicit appropriate consequences;
(5) the actual word the child utters comes first, indicating it has already been learned; reinforcement follows;
(6) every word which the child says does not receive special reinforcement;
(7) there is little occasion for reinforcement in the learning of grammatical rules;
(8) reinforcement is closely tied to motivation, whereas neither motivation nor reinforcement is essential to learning;
(9) reinforcement theory remains ambiguous as to what it is that is reinforced;
(10) the reinforcement formulation does not account for passive learning or the passive language that precedes active speech (1961, pp. 80-85).

Church concludes: "All in all, it probably makes no better sense to say that speech is selectively reinforced babbling than that writing or drawing is selectively reinforced scribbling" (p. 84). Church agrees that reinforcement has its place in overt learning and modification of verbal behavior.

The learning model of language acquisition is also criticized by other writers, for example, Miller (1965) who suggests that it cannot account for original sentence generation, and McNeill (1968) and Lenneberg (1967) who stress the biological approach. In answer to criticisms of the learning model, Staats (1968) proposes an integrated-functioning learning theory composed of both classical and operant conditioning principles and interrelationships. A logical conclusion is that there is an interaction of biological factors and learning experience, and that reinforcement works with other processes such as imitation and feedback, as mentioned above.

The process of induction also plays a part in language development, in relation to grammatical rules. Studies, principally that of Jean Berko (1958) Gleason, have shown that children have induced the latent structure of language by the age of four. This is evidenced by their application of grammatical rules to irregularities in the language, for example, the addition of the regular past tense morpheme to irregular verbs in comed and runned; and in their application of inflections to nonsense syllables in constructed tests. Children need exposure to much language in order for this induction to occur. John and Goldstein suggest that "children develop and test their tentative notions (hypotheses) about the meanings of words and the structure of sentences chiefly through verbal interaction with more verbally mature speakers" (1967, p. 165). Hearing a word several times in different contexts helps the child discover its meaning or use, or as John and Goldstein state: "Generalizing a word from one setting to another requires the discovery of the irrelevant variations which accompany the essential constancy" (1967, p. 170).

The quality of the language model is a factor. Ausubel (1964) considers a "faulty syntactical model" to be one aspect related to language retardation. Whether the language model must be correct according to the rules of standard English is a matter of controversy in the literature. However, this writer would agree that in order to develop longer and more complex utterances, children must be exposed to utterances more complex than their own. Gray and Klaus (1963) found that the language models of lower class children are often meager and restricted as well as grammatically incorrect. Olim, Hess and Shipman (1965) found that the child's use of abstractions was related to the mother's language style, including her tendency to use abstract language.

Cofer sees the learning of inflectional and syntactical skills as a concept formation task and states that

> . . . its rate of occurrence may well be governed by such variables as number of instances, amount of feedback, ratio of positive to negative instances, reinforcement contingencies, and all of the other variables pertinent to concept formation (1963, p. 198).

Thus, we see that the processes involved in language development may be inter-related and complex. It is difficult to specify the roles played by each. For example, John and Goldstein (1967) found that lower-class Negro children four years of age have great difficulty in acquiring words which appear in a number of different contexts. They attribute this to insufficient corrective feedback. However, this could be due to a simple lack of exposure to adult language.

Teaching style enters in to complicate the picture. Stodolsky (1965) attempted to predict a child's vocabulary at five years of age by assessing maternal language and teaching variables present when the child was four. The variables most highly related to the child's vocabulary level were the quality of the mother's language, her use

of reinforcement in a teaching situation, and her ability to make task-relevant discriminations in the teaching task. Hess and Shipman (1965) concluded that the mother's linguistic and teaching behavior is the most powerful influence upon the child's early learning.

Regardless of the respective roles played by imitation, feedback, reinforcement, induction of the latent structure, and teaching style, the language development of children involving each and all of these processes depends upon much verbal interaction between children and more mature speakers.

Affective Relationship

In addition to the processes described above, a major emphasis has been on the key role of the mother-child relationship in language development. Much of this emphasis has come from psychoanalytic thinking. Some writers stress this relationship. For example Wyatt states that the child's learning of the mother's speech "is achieved through the process of unconscious identification" (1949, p. 82). Institutionalized children who lack "mothering" are often retarded in language development (Yarrow, 1964, p. 100). According to Ainsworth, there is disagreement about whether the deprivation associated with institutional care is "attributable to the absence of a mother-figure or to 'environmental deprivation' contingent upon a relatively low level of stimulation in the institution setting" (1962, p. 103). Casler maintains that the deficits can best be explained in terms of "perceptual deprivation" (1961, p. 42). However, Ainsworth insists there is ample evidence that for children from six months to three:

> . . . the most significant aspect of deprivation in the ordinary institution is the lack of opportunity to form an attachment to a mother-figure. . . . 'perceptual deprivation' seems equivalent to insufficiency of maternal care. In the case of the child over two, efforts to enrich the institutional environment by providing nursery-school experience seem to be less effective in stemming retardation of development than efforts to facilitate the attachment of the child to a substitute mother. In short, the deprivation offered by the institution chiefly stems from insufficiency of intimate interpersonal interaction (1962, p. 156).

McCarthy places much emphasis upon the affective relationship. She states that there seems to be "a gradient of normal language development related to the amount and kind of contact with the mother. Only children, especially only girls, who have the most intensive and prolonged contact with the mother, are the most advanced in language learning" (1966, p. 324). McCarthy further speaks of the language retardation found in children who undergo prolonged separation from the mother: "These are the children who have no opportunity to identify with the mother or a mother substitute, so that the identification with the person who normally serves as the language model,

and who mediates the structure of the mother tongue to the child, cannot occur" (p. 324). According to Bandura and Walters, "research indicates that nurturance is not a necessary antecedent of imitative learning" but there is some evidence "that it can foster imitation" (1963, p. 96). Nurturance, then, plays a part in the stimulation of language, although it might be difficult to isolate it from other factors in the mother-child interaction.

This writer concludes that the mother-child interaction and relationship can supply a number of the factors related to language development: affective relationship, mature speech model served by the mother, variety in words and patterns, quantity of language stimulation, and response to the child in reinforcement and feedback. This investigator believes that the affective relationship and the verbal interaction between mother and child are the most important factors in language development. This seems obvious as we contrast two extremes: the accepting affectionate mother who talks to her child in informational and well-formed sentences and who responds to his verbalizations, and the rejecting mother who ignores her child's verbal efforts or commands him to "shut up." As the child's remarks are ignored or silenced, thus non-reinforced or at least not reinforced positively, he makes fewer verbalizations and the interaction decreases further. This study has attempted to examine the nature and influence of the mother-child interaction in a group of low-income Negro families (considered disadvantaged), and to determine the relationship of various aspects of this dyad to the child's level of language performance. In order to carry out this examination, observations were made of mother-child interaction. This was supplemented with information about home, family, and background factors.

Objectives

The objective, then, of the first part of the study was simply to determine the disposition of the mothers toward becoming involved in a parent participation-education program which was to offer an enriched curriculum to socially disadvantaged preschool children. Securing an adequate number of mothers willing to participate in such a program was necessary before the program could be established. Approximately 50 families were needed. Data on the proportion of consents and refusals could be helpful to those planning similar programs.

The second part of the study involved the testing of the following hypotheses about socially disadvantaged children, specifically in a sample of low-income Negro families: Socially disadvantaged children who score comparatively high on language measures come from families in which the mother is affectionate and accepting, and in which the mother gives praise, rewards independence, presses for achievement, reasons with the child, and encourages the child's verbalizations more than mothers whose children score comparatively low on the language measures. The high scoring child is more independent and shows greater initiative in verbal communication than the low scoring child. In these families, the mother also tends to be lower in her

use of criticism, restriction of the child's independence, rewarding of dependency, and discouragement of the child's verbalizations; and the child tends to be lower in dependency than the low scoring child. Conversely, children who score comparatively low on the language measures will come from families in which the mother-child interaction is the reverse of the above.

Methods

(a) General Design

The design included: selection of subjects who met the criteria for entrance into the preschool program; home visits by a social worker to determine the willingness of the mother to become involved in the parent participation-education preschool program; narrowing of the sample to Negro families only for the second part of the study; the securing and analyzing of language measures on the children; and the structured laboratory observations of mother-child interaction, including the ratings of these observations.

(b) Population and Sample

The families included in this study lived in a community in California which had a high proportion of low income families (650 families or about 4000 persons receiving welfare support in a total population of 22,000, or about one-fifth) and a high proportion of minority group families (between 80 and 95 per cent of the population). Since the majority of the population was Negro, a Negro social worker was employed to visit the homes. She presented the plan of the proposed parent-participation preschool program and sought to determine the willingness of the mother to enter such a program. In order for the preschool child to be enrolled in the contemplated two-year program, the following principal requirements had to be met: the family had to be low income (receiving welfare aid or having a comparable income); the child has to be born between December 3, 1962, and December 2, 1963, thus making him eligible to enter kindergarten in 1968; and the mother had to be able and willing to participate in the program one-half day weekly and attend class weekly. The social worker visited homes referred by the welfare and health departments and she made door-to-door contacts in the area of lowest incomes. The families themselves made a number of referrals. Both Negro and white families were included in the population to be considered for the preschool. The white families included Mexican-American families and Anglo families.

For the second part of the study, focusing on the relationship of the mother-child interaction and the language development of the child, the above sample was narrowed to include only Negro families, as was mentioned above. This was done to reduce the number of variables for the study. All of the children included in the second part of the

study were considered "Negro" as viewed by society although three were of mixed parentage (one Negro-white and two Negro-Indian) and many of the Negro parents probably were of mixed stock. They meet the criteria of "socially disadvantaged" in terms of low socio-economic status, minority group membership, and residence in a de facto segregated or ghetto area. They thus reflect the characteristics for "disadvantaged" proposed by Havighurst of "being at the bottom of the American society in terms of income" and suffering "from social and economic discrimination at the hands of the majority of the society" (1964, p. 215). They also reflect most of the characteristics described by Gordon:

> The term "socially disadvantaged" describes a population of children and adults varied in a number of ways but having in common a low economic status, low educational achievement, tenuous or no employment, limited participation in community organizations, and limited ready potential for upward mobility. . . . these people are handicapped by depressed social and economic status. They also are handicapped in too many instances by ethnic and cultural caste status. The children whom we refer to as "disadvantaged" are predominantly Negro, Puerto Rican, Mexican, and rural or mountain southern whites (1968, p. 382).

Of the 53 families in the study, 43 were receiving welfare assistance and most of the others had incomes under the poverty income level. It was difficult to determine the income of a few of the families because employment was sporadic. Of the total number of families in the sample, 32 (60 per cent) had only one parent in the home. Of the mothers, 32 (60 per cent) had educations of 11th grade or below. Of all the mothers, 27 (51 per cent) had received their educations in segregated southern schools. This meant that even though some of these mothers educated in the south had had some high school education, the quality of this education might be questionable. The author makes this statement on the basis of visits to Negro schools in the south which were overcrowded (sometimes 60 children in a classroom) and taught by teachers having poor educational backgrounds, and also on the basis of experience with women who had high school educations in the south but who had difficulty with reading and writing.

The subjects selected from these families were 53 children ranging in age from $2\frac{1}{2}$ to $3\frac{1}{2}$ years. Their mothers were of course included in the study. (In one case an older sister was called a "mother." She was serving as mother surrogate in the home, the mother having deserted the family some months previously, leaving much of the care of the child to the sister who was in her late teens.) Children who were first-born children, only children, and multiple-birth children were excluded from the study to control extraneous sources of variation and to permit the study to focus on fewer variables in view of the size of the sample. Several research studies have focused on the language development of multiple-birth children as compared with only children or first-borns compared with later children. According to McCarthy's review of these research studies (1954), first-born children and only children are often advanced in language development,

and multiple-birth children are usually retarded in language development in comparison with other children.

Each of the families was approached to secure permission to test the children on the language measures. The fact that the tests were of language development was not specified. It was desirable that the mother not be aware of the focus on language, lest she coach the child. Following these tests, each mother was approached to secure her participation in the structured observation session. Both the language measures and the interaction session were presented as testing sessions for the child in relation to his entrance into a compensatory preschool program. Both sessions were indeed related to this since the vocabulary test was one of the pre-test measures for the preschool, and the information obtained in the mother-child interaction session as to the functioning level of the child (and sometimes the mother) was used in determining final preschool acceptance and placement. Each mother was paid $2.00 per hour for the language testing and the observation session.

(c) Data and Instrumentation

Data were collected from two sources: language testing and structured observation of mother-child interaction.

Language Testing

Two measures of language development were secured on the children. One was the Peabody Picture Vocabulary Test (PPVT). This test was chosen because it is suitable for children between $2\frac{1}{2}$ and $7\frac{1}{2}$, it is easily administered, norms have been established, and it distinguishes between socially disadvantaged and middle-class children.

The second language measure consisted of a language sample tape recorded and later analyzed for mean length of utterance in morphemes. McCarthy emphasized that no language measures "have superseded the mean length of sentence for a reliable, easily determined, objective, quantitative, and easily understood measure of linguistic maturity" (1954, pp. 550-51). Cazden points out that "its validity rests on the widespread finding that it increases with age," and on more recent discoveries by Brown and associates of a close correspondence between mean length of utterance and the emergence of specific grammatical features (1965, p. 59). Shriner and Sherman (1967) found that mean length of response was the best single predictor of language development.

Nine speech therapists from a nearby school district were sent to the homes to secure samples of the children's language. Use of only one therapist would have been desirable but was not possible. Because these children were generally more accustomed to women than to men, only female testers were used. All of the testers were Caucasian. It would have been desirable to use only Negro testers but none were available. Each therapist carried a kit of toys to interest the child and to help elicit language. This kit contained the same toys as

those used by McCarthy (1930) and Templin (1957). These were as follows:

red car (plastic)
kitten (rubber squeaking toy)
rubber ball
toy telephone
mouse (rubber squeaking toy)
music box (playing "Twinkle, Twinkle, Little Star")
animal book (Wonder Book of Baby Animals)

The following toys were also included:

hourglass toy (plastic toy containing colored bits in water)
finger puppet
Baby's First Toys book
Negro doll family (Flagg flexible dolls: father, mother, boy, girl, baby)
hand mirror
spinner toy (brightly colored wooden toy)
small baby doll and bottle
dog (rubber squeaking toy)
Baby's Things book
bell (metal)
horse (rubber squeaking toy)
Baby Sees book
cat cry (box which emits cat meow sound when tipped)
yellow, blue or green car (plastic)

In addition, the tester carried a ten cent toy wrapped in gift paper. This proved to be extremely helpful. The tester gave this toy to the child as the session ended. The child became absorbed in unwrapping it and did not clamor to keep the toys in the kit. All of the testing toys were carried in a plastic brief case for convenience of use.

The testers reported that all of the toys were usually used in securing the speech samples. Sometimes they were used several times. The plastic hourglass toy seemed to captivate the children most. The toys which made sounds were least effective in eliciting speech because the children usually stopped talking and listened. These included the music box and the squeaking toys. The books often stimulated language. The child usually made comments as he pointed to the pictures.

Each tester carried a notebook which she used to tabulate the utterances of the child in blocks of five thus: 𝍸. She was instructed to attempt to get at least 100 utterances, with more if possible to insure 100 intelligible ones. She was also asked to write down remarks which might be unintelligible on the tape but which she understood because of the context: the toy being played with, etc. The testers were asked to use questions if the child did not talk spontaneously, avoiding questions answerable with only one word. Suggested remarks or questions were: "Tell me about it" and "What are you doing?" (as the child manipulated a toy). The tester was encouraged

PLATE I

KIT OF TOYS USED TO OBTAIN LANGUAGE SAMPLES

to use the toy telephone to carry on a conversation, and to ask the child to talk to the puppet and show the tester what the doll family was doing. The tester used a portable tape recorder (Wollensak model) to secure the language samples.

The tester also administered the Peabody Picture Vocabulary Test. The tape recorder was left on during the test but the utterances of the child during the test were excluded from the mean length of utterance count. These utterances tended, on the average, to be shorter than utterances during the rest of the session because the objects pictured in the test booklet and the request of the tester to point to an object caused some children to repeat the name of the object as they pointed. The tester usually spent an hour with the child, sometimes more time if the child was shy at the beginning.

The language samples were secured in the home. This was done because the children were young and many were not accustomed to strangers. Use of the home setting, it was thought, would decrease the strangeness of the situation. When the appointment was made by telephone, the tester asked the mother to arrange a room alone for the child and the tester, free of noise or other distraction. Sometimes this request was not complied with and distractions occurred. This investigator believes that the advantage of testing the young child in a secure home setting outweighed the disadvantage of the occasional distractions which occurred in the homes.

The attempt was made to secure at least 100 utterances for the sake of reliability. Darley and Hall (1960) concluded that for 50 responses, the reliability of Mean Length of Response scores (.85) seems adequate for most purposes. In order to have at least 50 usable responses, the testers attempted to secure at least 100, so that unintelligible responses and other responses not meeting the criteria could be excluded.

The number of utterances obtained from the children ranged from 30 to 487. The median was 186. This investigator followed the example of Cazden (1965) in using the total number of utterances for each child as the corpus (excluding those obtained during the PPVT), in order to obtain the maximum reliability for each subject. Two children were excluded from the study because their utterances numbered 4 and 12, and these were largely unintelligible. There were four other children whose language samples numbered less than 50 utterances. These included samples numbering 30, 39, 44, and 47 utterances. At first this investigator planned to drop these subjects from the study also. However, upon closer scrutiny, these children were found to be those most deprived and this amount of language, secured in at least an hour with each child, was taken to be probably representative of the child's level of language development. These children were therefore retained in the study.

The tape recordings of the children's language were first transcribed by linguists. Two of the linguists were graduate students in linguistics at the University of California and were recommended by Susan Ervin-

Tripp. One of these was an instructor in linguistics. The third linguist was a graduate student in linguistics at Stanford University. All three had had experience with phonetic and phonemic transcriptions from tape recordings. When the linguists were midway through transcribing the tapes, the investigator gave each one several tapes which had been transcribed by one of the others. In comparing their transcriptions it became apparent that there were frequent disagreements among them as to what the children were saying. Because of the difficulties the linguists had understanding these young Negro children, both because of their young age and because of their dialect, the tapes were also transcribed by teachers accustomed to working with these preschool Negro children. In situations where the linguists did not understand the children, the utterances transcribed by the teachers were used.

These transcriptions were analyzed to secure the Mean Length of Utterance in morphemes, following the procedures outlined in Appendix A. The rules developed by Roger Brown and associates (Brown, 1967) were used, with one exception. Brown does not count expressions which he terms "fillers" such as mm, uh, and oh. This investigator did not count such "fillers" as mm and uh, but oh was included in the morpheme count because it usually seemed to carry meaning, for example, "Oh, man, it cold outside!" In addition to Brown's rules, many of the suggestions made by Cazden (1965) were used, for example, the counting as one morpheme the following types of words: contractions of auxiliary verbs and not, such as don't and can't; and the specific contractions it's, dat's and what's, because of the way in which these appear in these children's language developmentally. However, Cazden excluded many non-sentential expressions such as vocatives, exclamations, yeah, and no. This investigator included these as Brown does.

Structured Laboratory Situation for Observation

Observations of the mother-child interaction were made, using modifications of techniques developed by several investigators. Hoffman and Lippitt (1960) describe the development of these techniques. Behavioral observations have been made in the home for many years by such groups as the Fels Institute. Observations give objective data which are not filtered through the perceptions of family members as are interview data, although the presence of the observer may influence the interaction. To retain the objectivity of the observational method while eliminating the inefficiency of waiting until significant events occur, and to standardize the situation in which behavior occurs, a method of observation in structured situations has been developed by Bishop (Merrill, 1946; Bishop, 1951), Moustakas (1956), and others. Techniques have been devised whereby subjects are given a standard stimulus situation to elicit codable behavior immediately. The interaction upon which these studies have focused is probably impossible to obtain from verbal reports. According to Bell (1964), the situation must be structured to facilitate the desired interaction.

One of the major difficulties with the structured observation method is the artificiality of the situation. Subject cooperation may be difficult to obtain. A study by Schalock (1956) gave evidence that

behavior in the structured situation may differ from that at home unobserved. However, the very young child is largely unaware of the observation and the naturalness of his response makes the situation more real to the mother. Hoffman and Lippitt conclude that Bishop's use of behavioral observations in structured situations (mother-child interaction observed from behind a one-way screen) points this up as a very promising method for research in the family (1960, pp. 1000-1003). This method was used by this investigator to secure as objective a measure as possible of mother-child interaction.

The mother and child were brought to a laboratory in which there was a room with a one-way observation mirror. As mentioned above, the mother was told that this was a testing session for the child in relation to preschool entrance. It was felt that this would lessen her self-consciousness about her own behavior. The observation was 30 to 40 minutes in length and consisted of the following six tasks:

I. The mother and child were given two toy telephones and they were asked to talk to each other on the telephone.

II. The child was asked to complete a simple jigsaw puzzle and the mother was told she could help if she wished.

III. The child was given a small stuffed dog and the mother was asked to encourage the child to tell her about it.

IV. The child was given some matching cards of animals and their homes to fit together, and again the mother was told she could help if she wished.

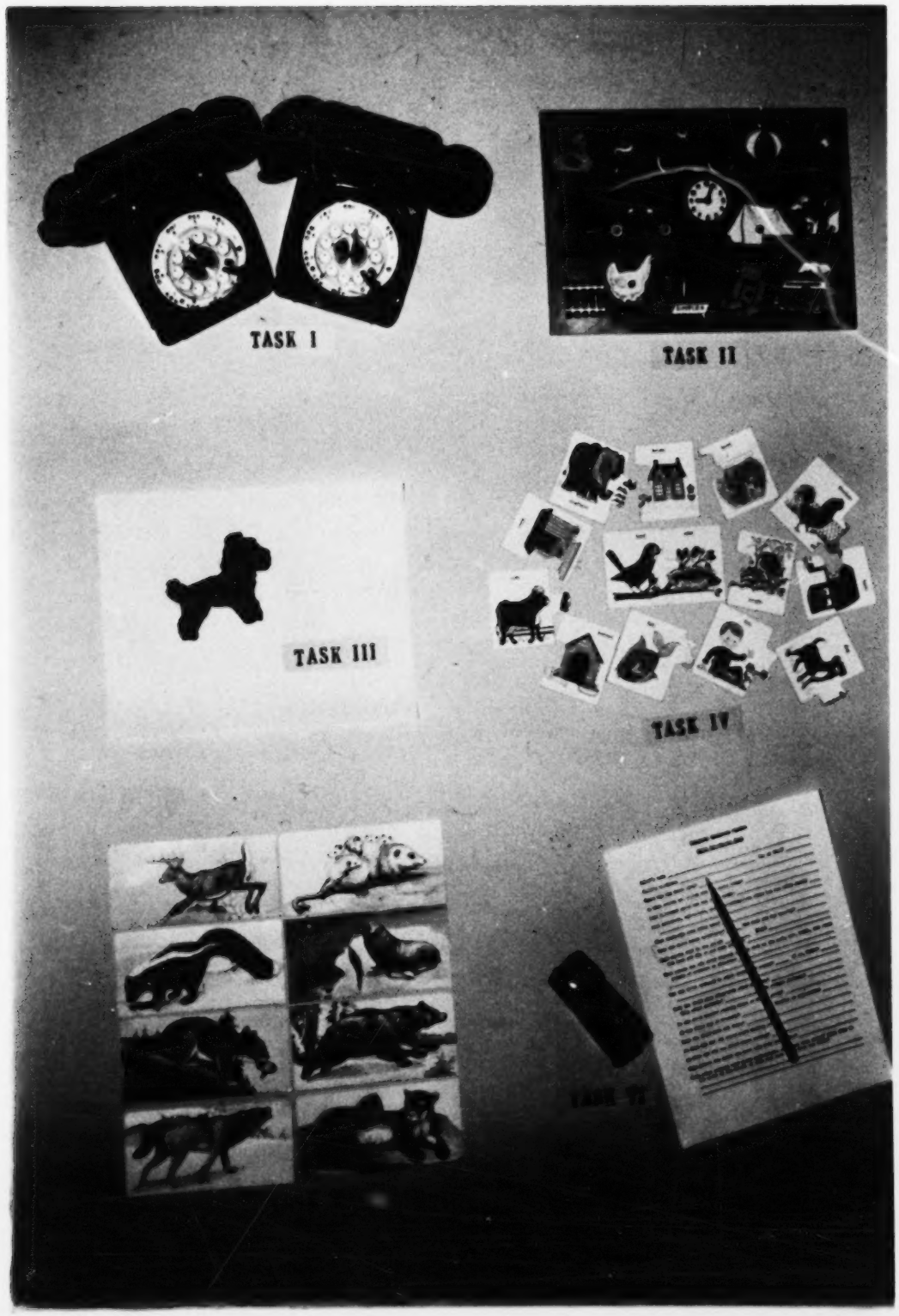
V. The mother was given some animal cards and she was asked to tell the child about the animals pictured on them. Wild animals were chosen with the assumption that the child would not be very familiar with them.

VI. The mother was asked to fill out an information form while the child was given a toy car to play with. This was designed to determine mother and child behavior during a mother-preoccupied period.

The telephone conversation technique was used successfully by Sears, Rau, and Alpert (1965) to produce interaction. In the Sears study battery-operated telephones were used, whereas this investigator used two toy telephones. In most cases the toy telephones seemed satisfactory. For several children accustomed to talking on real telephones, not hearing the mother's response through the receiver seemed to puzzle them. This may have inhibited their responses, and therefore battery-operated telephones would have been more desirable.

The microphone in the room and the one-way mirror were pointed out to the mother and child, although the child probably never grasped the fact that he was being observed. One tape recording was made of the mother and child verbalizations, and another recording was made by the observer, the investigator of this study. The observer described the interaction taking place between mother and child as she watched from behind the one-way mirror. Following technical procedures similar to

PLATE II



EQUIPMENT USED FOR TASKS IN MOTHER-CHILD SESSIONS

those used by Hess and associates (Hess et al., 1968), the two tape recordings were synchronized by a beeper which sounded at approximate 15 second intervals. The tapes were transcribed and the transcripts arranged with the mother-child verbalizations in the left hand column and the observer's description in the right hand column. (See samples of the mother-child interaction transcriptions in Appendix E.)

The transcribing of these tape recordings proved to be a difficult and lengthy task. It was impossible to find typists who could understand the language of young Negro children. Even Negro typists from the community in which the families lived had difficulty understanding the language of children so young. It was necessary for this investigator, who was accustomed to the children's speech through experience with them in the preschool program, to transcribe the tapes. Each 30-40 minute tape recording required from four to ten hours to transcribe because it was often necessary to listen to a child's utterances several times before he could be understood.

Two raters independently scored the interaction of each mother-child pair on 16 rating scales. One rating scale was adapted from the studies of Baldwin, Kalhorn and Breese (1949); three from the study by Hess, Shipman, Brophy and Bear (1968); and seven from the study by Sears, Rau and Alpert (1965). The scales used from Sears and associates are contained in his Analysis Schedule and Procedure Manual. Five of the scales were constructed by this investigator. (The scales are given in Appendix B.) The titles of the rating scales were as follows:

A. Mother's Affectionateness
B. Mother's Acceptance
C. Mother's Use of Praise
D. Mother's Use of Criticism
E. Mother's Rewarding of Child's Independence
F. Mother's Restriction of Child's Independence
G. Mother's Rewarding of Child's Dependency
H. Mother's Pressure for Child's Achievement
I. Mother's Use of Reasoning with Child
J. Mother's Encouragement of Child's Verbalizations
K. Mother's Discouragement of Child's Verbalizations
L. Child's Independence
M. Child's Dependency
N. Child's Initiative in Verbal Communication
O. Mother's Preoccupation with Questionnaire (Task VI only)
P. Child's Attention Seeking During Mother's Preoccupation (Task VI only)

Both transcripts and tape recordings were given to the two raters who were to score the mother-child interaction. These two raters had had experience in making ratings for research purposes previously, one as a graduate student in educational psychology and the other as a research assistant on several sociological and psychological research projects. The interaction of each mother-child pair was to be rated on the 16 rating scales. For training purposes the two raters and the investigator rated together several transcripts and tapes which were not to

be included in the sample. Areas of disagreement were discussed until the raters were agreeing satisfactorily. After the raters had rated the first five subjects the investigator conferred with them regarding areas of disagreement, so that as much as possible they were interpreting the scales similarly.

The transcripts and tape recordings given the raters were separated by task for each subject. Each rater rated the same task for several subjects before a second task was rated for those subjects. In this way an attempt was made to avoid the halo effect which might occur if all tasks for one subject were rated consecutively. Neither the observer nor the raters were aware of the language scores of the children. The raters were not even aware that language measures had been secured on the children or that the other variable of the study focused on language. After scoring protocols for the individual tasks, the raters also rated each subject overall, using the original tapes which included all tasks for one subject on the tape. This was done for the first 23 subjects only. An overall rating was secured in this manner and a second overall rating was secured by averaging the ratings given each of the six tasks (five tasks when a rating scale was not relevant to Task VI.) The two overall ratings generally agreed, and the averages were considered more objective because the possibility of halo effect was lessened. Therefore on the last 30 subjects, only the average across tasks was secured, and for the statistical analysis, this average across tasks was used as the overall score for each subject.

Supplementary Information

The form given the mother to fill out during Task VI asked for the following information: child's birthdate; sex; place of birth; residences; illnesses, accidents, and hospitalizations; handicaps; amount of time child watches television; who reads to the child and amount of time; excursions and travels; child's play with other children; reactions to others; fears; age of walking alone; age of talking; and persons spending time with the child. (See Child Information Form, Appendix C, for the specific questions asked.)

In addition, at the end of the structured observation session, the investigator interviewed the mother and secured the following information: unusual events in the child's life; persons who supervise and discipline the child; method of discipline; child's ability to dress himself; toilet training; allergies; problems with child; child's best qualities; parents and other adults present in home; siblings and other children in home; parents' marital status; parents' education, occupation, place of origin, and places lived; etc. (See Child and Family Information Form, Appendix C.) The investigator also ascertained the family income in relation to the child's entrance into preschool (eligibility for the compensatory education program was based upon income). Some of the information gained on the forms was analyzed to determine what factors were related to the child's language development, especially such factors as the presence of the father in the home, education of the mother, ordinal position of the child in the family, and sex of the child.

The Stanford-Binet, Form L-M, was administered to 43 of the 53 children in this study as a pre-test in relation to their entrance into the compensatory education preschool program. It was administered from two to four months following the administration of the language measures secured for this study. Since this information was available, the Stanford-Binet IQs are included as an additional dimension.

(d) Analysis

The first part of the data analysis consisted of a multifacet analysis of generalizability made of the ratings for the mother-child interaction by the two raters. Such an analysis separates distinct sources of variance, and provides statistical information useful in making decisions as to how the research procedures and instruments can be altered to improve results. This analysis also includes a coefficient of generalizability which is comparable to the conventional reliability coefficient. This analysis guided several decisions which were made in this study (see Results). (For a description of the techniques for multifacet analysis of generalizability, see Cronbach et al., 1967, or Gleser et al., 1965.)

The second part of the data analysis dealt with the Peabody Picture Vocabulary Test. Correlations were computed between the mother-child interaction ratings and both the PPVT raw scores and the PPVT IQs. Despite the small age range, the correlation between PPVT raw scores and age was .51 (significant). The correlation between PPVT IQ and age was .13. Correlations between mother-child interaction ratings on the 16 scales and age ranged from -.07 to .26. It appeared that the most stringent procedure would be to present as chief data analysis the correlations using PPVT raw scores with interaction ratings, with the influence of age partialed out. Partial correlations were computed by the formula given by McNemar (1969, pp. 183-85). Partial correlations relevant to the hypotheses were tested for significance by the t technique (McNemar, 1969, p. 185). Interpretation of the data was made primarily on the basis, then, of these partial correlations.

The third part of the analysis dealt with the Mean Length of Utterance (MLU) in morphemes. This was calculated for the language sample from each child, following the procedures developed by Brown, as described above. Again, partial correlations of MLU scores and mother-child interaction ratings were computed to remove the influence of age. The correlation of MLU and age was .16, and the correlations between the interaction variables and age ranged from -.07 to .26 as mentioned above. Again, each partial correlation was tested for significance.

Following the analysis based on the total group of 53 subjects, the group was separated according to sex, and sex differences were analyzed. This investigator considered this of particular interest because of findings reported in the literature. According to McCarthy, "one of the most consistent findings to emerge from the mass of data accumulated on language development in American white children seems to be a slight difference in favor of girls in nearly all aspects of

language that have been studied" (1954, p. 577). However, McCarthy calls attention to

> . . . the report of sex differences favoring the boys in the two Negro groups studied by Anastasi and D'Angelo (1952). This may be due to racial differences or it may be associated with differential attitudes towards the two sexes reflected in different child-caring practices in the two cultural groups (1954, p. 579).

McCarthy further remarks: "It is interesting to note that both Davis (1937) and Young (1941) agree in finding the sex differences more marked among children of the lower socio-economic levels than among those from superior homes" (p. 579). Because our sample is both Negro and low-income, an analysis of sex differences should be of interest.

Supplementary information was analyzed briefly. The correlation of the Stanford-Binet IQ and each of the interaction variables was computed. Much of the data given by the mothers on the Child Information Form and the Child and Family Information Form were incomplete and too vague to permit analysis. For example, mothers frequently did not know the education of the fathers. Information about the amount of time the child spent watching television or was read to by parents or siblings was vague. Correlations of the two language measures with mother's education and with the ordinal position of the child in the family were computed. The language scores for children in father-present homes and for those in father-absent homes were separated and the significance of the difference between the means of the two groups was calculated. This concluded the analysis of data related to the purposes of this study.

Results

Part I. Parent Survey

During the spring of 1966, a Negro social worker visited over one hundred families in the area selected which has a high proportion of low income and minority group families. Of the families visited, about 70 met all the requirements. There were only five mothers who stated that they were not interested in entering the parent participation-education program for their preschool children. Reasons given were: inability to dress another child in the mornings, the desire to teach the child at home, and the belief that children do not need nursery school. A few who were initially interested changed their minds later because of the mother's working hours or family problems. In September, 1966, a total of 62 families had indicated a definite intention to enter the preschool. This preschool was set up as a research program under the California State Department of Education and continued for its second year with research support from the Head Start Research office. It was directed by this investigator, and focused on parent participation and education.

Part II. Mother-Child Interaction and Language Development

Means, Ranges, and Standard Deviations

The means, ranges, and standard deviations for all variables are reported in Table 1. The two language measures, PPVT and MLU, and the Stanford-Binet show wide variation in this sample of 53 children. In the results for the mother-child interaction scales, Scales A-N, the ranges and standard deviations based on the average across tasks for each subject on each rating scale. The tables in Appendix D for the multifacet analysis of generalizability report the components of variance based on ratings on all tasks. In general, in Table 1, the mother-child interaction ranges over no more than half of the scale. Scale O: Mother's Preoccupation with Questionnaire, and Scale P: Child's Attention Seeking During Mother's Preoccupation, show a range of scores over the entire scale because they are based on one task only and not an average of tasks. The education of the mothers ranges from 8-14 which is from the 8th grade to 2 years of college.

A few additional comments might be made about the range of ratings on the interaction scales. Scale C: Mother's Use of Praise, and Scale I: Mother's Use of Reasoning with Child, show ranges on the lower half of the scales. These mothers appear to be sparing in their use of praise and reasoning. Some of the tasks did not lend themselves to mother's reasoning. Scale D: Mother's Use of Criticism, and Scale K: Mother's Discouragement of Child's Verbalizations, also show ranges on the lower part of the scales, indicating that these mothers were also sparing with criticism and discouragement of the child's efforts. Again, some of the tasks did not lend themselves to criticism and discouragement of the child's efforts. The scales are presented in Appendix B.

Multifacet Analysis of Generalizability

Ratings for each subject were made on each of the tasks by two raters independently. A multifacet analysis of generalizability was made of the ratings for the first 23 subjects, and again after the ratings on all 53 subjects were completed. This was done to determine how closely the raters were in agreement, how much the scales were differentiating among subjects, what other sources of variation were affecting results, and to secure a measure of reliability or generalizability (Cronbach et al., 1967, p. 81).

The estimated coefficient of generalizability $[\text{Est } E\rho^2]$ is the ratio of estimated universe-score variance $[\text{Est } \sigma^2(M)]$ to the estimated expected observed variance $[\text{Est } E\,\sigma^2(X)]$. The square root of the coefficient is the estimated correlation of observed and universe scores (Cronbach et al., 1967, p. 29). The subject component of variance is interpreted as the universe-score variance. The expected observed variance is composed of the universe-score variance plus variance from other uncontrolled sources, denoted $\sigma^2(\delta)$. In this

Table 1

Means, Ranges, and Standard Deviations
For All Variables

Variable	Mean	Range	S.D.
PPVT IQ	79.83	55-122	12.86
PPVT Raw	17.96	1-49	9.45
MLU	2.59	1.1-4.2	.79
Age	3.05	2.59-3.57	.29
A. M's Affectionateness	4.72	3.4-5.9	.70
B. M's Acceptance	6.76	5.3-7.9	.73
C. M's Use of Praise	2.78	1.3-5.9	1.01
D. M's Use of Criticism	2.93	1.3-5.6	.93
E. M's Rewarding of C's Independence	4.85	2.0-7.1	1.08
F. M's Restriction of C's Independence	5.26	3.8-7.8	.84
H. M's Pressure for C's Achievement	5.85	4.6-7.1	.60
I. M's Use of Reasoning with C	2.95	1.3-5.4	1.04
J. M's Encouragement of C's Verbalisations	5.48	3.9-7.2	.71
K. M's Discouragement of C's Verbalizations	2.40	1.2-5.3	.83
L. C's Independence	4.68	2.6-6.3	.98
N. C's Initiative in Verbal Communication	4.95	1.6-6.9	1.10
O. M's Preoccupation with Questionnaire	6.59	1.0-9.0	1.73
P. C's Attn. Seeking During M's Preoccup.	5.22	1.0-8.5	1.74
Stanford-Binet IQ	89.37	69-116	11.78
M's Education	10.89	8-14	1.98
C's Ordinal Position in Family	4.34	2-11	2.17
Number of Children in Family	5.02	2-11	2.22

C - Child, M - Mother

n = 53, except for Stanford-Binet, n = 43

Scales G and M dropped from study, see page 30

*Age was computed in years and decimals of a year

**The ranges and deviations on rating scales A-N are based on the average across 5-6 tasks for each subject. The possible range on the scales themselves is from 1-9, inclusive.

study, $\sigma^2(\delta)$ does not include the variance from R (Rater), T (Task), and RT (Rater-Task Interaction), because these are controlled sources of variation. The same two raters and the same tasks were used for all subjects. $\sigma^2(\delta)$ does include variance from SR (Subject-Rater Interaction), and SRT (Subject-Rater-Task Interaction) or residual error. These are the uncontrolled sources of variance. Cronbach gives an analogy that the universe-score variance is the "signal" carrying the desired messages, and the remainder of the observed variance is "noise" (Cronbach et al., 1967, p. 29).

First Multifacet Analysis of Generalizability

Table 2 summarizes this analysis for the first 23 subjects. It includes the components of variance attributable to each source: subjects, raters, tasks, interactions among them, and residual error from undetermined sources, as well as the coefficients of generalizability. An analysis was not computed for Scales O and P because these scales were used for Task VI only. On the basis of the results presented in Table 2, several decisions were made leading to modifications in subsequent data collection.

The data on Scale A: Mother's Affectionateness, Scale E: Mother's Rewarding of Child's Independence, and Scale N: Child's Initiative in Verbal Communication, were satisfactory in general, showing coefficients of generalizability of .79, .84, and .77 respectively. For example, Scale E shows a subject component of variance of 1.33, demonstrating that the scale is differentiating among subjects, which is desirable. Raters show very little disagreement in the average score assigned to a subject, although there is variation in scoring a single subject on a single task. Except for Task variance of .70 (to be discussed below), there is no excessive variance from other sources, resulting in an acceptable coefficient of reliability of .84.

Scale F: Mother's Restriction of Child's Independence, and Scale J: Mother's Encouragement of Child's Verbalizations, show large Task variance (2.42 and 2.73). Scale H: Mother's Pressure for Child's Achievement, and Scale K: Mother's Discouragement of Child's Verbalizations, show large Task variance (2.73 and 1.14) and the low subject component of variance (.17 and .06) demonstrate that the scales are not differentiating among subjects. Scales H and K therefore show low coefficients of generalizability. Adjustments made to lower Task variance are described below.

Scale B: Mother's Acceptance, showed subject component of variance of .56 and no excessive error variance, but some items on the scale confused the raters and minor revisions were made to clarify this scale. Scale I: Mother's Use of Reasoning with Child, showed large rater variance (1.20). Conference with the raters revealed that Rater 1 was interpreting "reasoning" more narrowly than Rater 2 and this was clarified so that both thereafter interpreted "reasoning" broadly. Scale L: Child's Independence, had a low subject variance (.54) in proportion to error variance, leading to a coefficient of generalizability of only .57. Some items on the scale were clarified.

Table 2

Multifacet Analysis of Generalizability

(n = 23)

Scale	Component of Variance							Estimates for a 2-rater x 6-task design				
	S	R	T	SR	ST	RT	SRT	$\sigma^2(\delta)$	$\sigma(\delta)$	$\sigma^2(M)$	$E\sigma^2(X)$	$E\rho^2$
A	.44	-.01*	.21	.08	.17	.11	.58	.12	.34	.44	.56	.79
B	.56	.08	-.05*	.17	.45	.09	.49	.20	.45	.56	.76	.74
C	.15	.32	1.07	.34	.59	.06	.77	.33	.58	.15	.48	.31
D	-.01*	1.31	.11	.27	.51	.08	1.12	.31	.56	.00	.31	.00
E	1.33	-.02*	.70	.16	.50	.02	1.14	.26	.51	1.33	1.59	.84
F	.63	.15	2.42	.10	.71	.07	1.03	.25	.50	.63	.89	.72
G	.19	.46	.63	.37	.49	.00	1.14	.36	.60	.19	.55	.34
H	.17	-.03*	2.73	.16	.35	.08	1.07	.76	.87	.17	.92	.18
I	.41	1.20	.65	.64	.57	.07	1.10	.51	.71	.41	.92	.45
J	.45	-.01*	1.56	.03	.32	.01	1.14	.17	.41	.45	.62	.73
K	.06	.20	1.14	.31	1.04	.42	1.57	.46	.68	.06	.52	.11
L	.54	-.03*	.08	.33	.75	.11	1.30	.40	.63	.54	.94	.57
M	.00	.04	.08	.28	1.10	.04	1.91	.48	.69	.00	.48	.00
N	.83	.11	.07	.18	.54	.06	.75	.24	.49	.83	1.07	.77

*Treated as zero.

Abbreviations: S - Subjects, R - Raters, T - Tasks

A - N : Mother-Child Interaction Scales

Est $\sigma^2(\delta)$ - Sum of contributions to $\sigma^2(\delta)$ from SR, ST, and SRT
Est $\sigma(\delta)$ - Standard error of measurement
Est $\sigma^2(M)$ - Estimate of universe-score variance
Est E $\sigma^2(X)$ - Estimate expected observed variance
Est E ρ^2 - Coefficient of generalizability

On Scales B, I, and L, the raters were asked to check their ratings on the first 23 subjects in the light of these revisions and clarifications.

Scale C: Mother's Use of Praise, and Scale D: Mother's Use of Criticism, showed very small subject components of variance (.15 and .00) and large rater components (.32 and 1.31). It was discovered that Rater 2 was considering both the mother's words and her tone of voice in rating praise and criticism and Rater 1 was considering only her words. The scales were clarified so that both the mother's words and her tone of voice, as an indication of intensity, were considered. Rater 1 was asked to re-rate the first 23 subjects on Scales C and D.

Scale G: Mother's Rewarding of Child's Dependency, showed some rater variance (.43) and low subject variance (.29). The coefficient of generalizability was only .56. Scale H: Child's Dependency, showed no subject component of variance (.00). Therefore no differentiation among subjects, and a resulting coefficient of generalizability of .00. It did not seem feasible to revise these two scales. As they were not central to the study, Scales G and H were abandoned.

Task VI

In Task VI the mother was given a form to fill out and was thus preoccupied. This task was a measure of parent-child interaction during the mother's preoccupation. Originally mother-child interaction during Task VI was rated on all scales. After the analysis for the first 23 subjects, it became obvious that ratings of Task VI should not be included for most scales. The investigator evaluated all scales and data and then excluded Task VI ratings for most scales. For Scale C: Mother's Use of Praise, Scale D: Mother's Use of Criticism, Scale E: Mother's Pressure for Child's Achievement, Scale I: Mother's Use of Reasoning, and Scale J: Mother's Encouragement of Child's Verbalizations, Task VI was considered irrelevant. There was no task for the child to perform, therefore little occasion for praise, criticism, pressure for achievement, reasoning, or encouragement of verbalizations. The mother was often rated at the low end of the scale because, preoccupied, she gave no praise, criticism, etc. However, preoccupation could be considered appropriate for the mother during this task. These low ratings distorted the average across tasks. Therefore Task VI ratings on Scales C, D, E, I, and J were omitted.

Scale A: Mother's Affectionateness, Scale B: Mother's Acceptance, and Scale K: Child's Initiative in Verbal Communication, appeared relevant to VI. However, the mother's preoccupation with the form often caused the raters to make no rating. For example, on Scale B there was no rating from one or both raters on Task VI for 16 of 23 subjects. The problem of missing data led to the decision to omit Task VI ratings for Scales A, B, and K.

Scales M, F, and G appeared relevant to Task VI but problems occurred.

With Scale E: Mother's Rewarding of Child's Independence, the raters made no rating or rated the mother as having no interest in the child's independence. On Scale F: Mother's Restriction of Child's Independence, the scale title appeared relevant to Task VI. However, this scale considers only unsolicited help to the child, which rarely occurs when the mother is preoccupied. This resulted in no rating or a low one. Scale K: Mother's Discouragement of Child's Verbalizations, presents a different problem. It was more appropriate for the mother to discourage the child's verbalizations as she filled out the form than it was on the other tasks. These ratings conflicted with her behavior on the other tasks and caused distortion in the average rating. Consequently, ratings on Task VI for Scales E, F, and K were omitted.

Scale L: Child's Independence, takes into consideration the child's behavior while the mother is preoccupied. It is therefore relevant to Task VI and these ratings are included in the average across tasks. Scales O and P were specifically designed with Task VI only in mind. Therefore, the ratings from Task VI were included for only three scales: L, O and P. A thorough analysis of all the scales in relation to Task VI to determine their relevancy should have been made before ratings were attempted on this task. The raters could then have ignored Task VI for most scales and saved time. It would have avoided decision making about the inclusion of data after much data had already been secured. Of course, the decisions made on the basis of missing data could only be made after a large fraction of the data had been gathered.

Missing Data

Occasionally on Tasks I through V, there was too little interaction for a rating to be made. Sometimes one or both raters decided there was insufficient interaction for rating. Omitting Scales G and M, all the scales except L had 53 subjects, 2 raters, and 5 tasks. These, therefore, had 530 data cells. Scale L had 6 tasks and therefore 636 data cells. Of these scales the following had missing data:

Scale	Cells Missing Data
C	2
E	81
F	11
J	2
K	2
L	5
N	1

Except for Scales E and F, the number of cells missing data is negligible. Scale E: Mother's Rewarding of Child's Independence, and Scale F: Mother's Restriction of Child's Independence, have higher percentages of missing data (15% and 2% respectively) than the other scales because in some instances the child showed no independent behavior which the mother could reward or restrict.

On these scales when one or more cells had missing data, these cells were omitted in the calculation of the average rating across tasks. The average was computed from the remaining cells across tasks and raters for that subject. It was these average ratings that were later correlated with the language measures. In the multifacet analysis, empty cells could not be omitted. For this procedure, an empty cell was filled with the average of the other task ratings by that rater for that subject. This resulted in less distortion than zero ratings would have produced, and altered the means very slightly.

Scales O and P presented a different problem since these scales were used for Task VI only. In two instances, the mother could not read the form so that this task was missing for these two subjects. For a third subject, the child played independently and made no overtures to the mother. The mother could not be rated on her responsiveness, resulting in an empty cell on Scale O. Thus, for 53 data cells, three for Scale O and two for Scale P had data missing. Since there were no other tasks for these two scales and empty cells computed at zero for the correlations would cause distortion, these empty cells were filled with the averages for the other subjects. This should not distort the correlations to any appreciable extent. The multifacet analysis of generalizability was not calculated for Scales O and P because only one task was used for these two scales.

Second Multifacet Analysis of Generalizability

After all ratings were completed, a final multifacet analysis of generalizability was performed. Table 3 presents the coefficients of generalizability for the 53 subjects, compared to those for the first 23 subjects rated. Tables 13 to 24 in Appendix D give detailed information on this analysis for 53 subjects, one table being devoted to each scale.

The coefficients of generalizability for scales other than H range from .60 to .84. On 7 of the 14 scales the coefficients increased over those for the first 23 subjects. There was a considerable increase in the coefficients for Scales C, D, I, and K, reflecting the changes in the scales and the omission of Task VI ratings. The coefficient for Scale H: Mother's Pressure for Child's Achievement, is only .36, increasing from .18 for the first analysis. However, the subject component of variance for Scale H is only .13, indicating either that subjects did not differ or that the scale was insensitive. Omitting Task VI reduced the task variance for Scale H but the subject variance dropped below that for the first 23 subjects. This low coefficient for Scale H limits conclusions based on the correlational data for this variable. The other coefficients of generalizability, ranging from .61 to .84, are considered acceptable.

For Scale C: Mother's Use of Praise, the task variance is high (1.03), probably because praise is more appropriate to some tasks. However, this component of variance does not enter into the coefficient because all subjects had the same tasks. For six of the scales (C, D, F, I, K, and L), the ST (Subject-Task) component is higher than for the other

Table 3

Coefficients of Generalizability

Scale	Est E ρ^2	
	n = 23*	n = 53
A. M's Affectionateness	.79	.72
B. M's Acceptance	.74	.72
C. M's Use of Praise	.31	.68
D. M's Use of Criticism	.00	.61
E. M's Rewarding of C's Independence	.84	.78
F. M's Restriction of C's Independence	.72	.64
G. M's Rewarding of C's Dependency	.34	---**
H. M's Pressure for C's Achievement	.18	.36
I. M's Use of Reasoning with Child	.45	.66
J. M's Encouragement of C's Verbalizations	.73	.72
K. M's Discouragement of C's Verbalizations	.11	.60
L. C's Independence	.57	.68
M. C's Dependency	.00	---**
N. C's Initiative in Verbal Communication	.77	.84

*These coefficients for 23 subjects are the results of the first multi-facet analysis, before some scales were modified and before raters were instructed to re-rate subjects, using the modified scales.

**No ratings were made on Scales G and M after 23 subjects. See p. 30.

More detailed information is given on Tables 13-24, pages 85-96 in Appendix D.

scales (ranging from .62 to .95), and this source of error lowers the coefficients of generalizability. Apparently for these scales some subjects reacted differently to different tasks. Generally the largest source of variance was the residual error (SRT interaction).

Correlations of Language Measures, Mother-Child Interaction Ratings, and Ages

Product moment correlations were computed between the average ratings across raters and tasks, the two language measures, and the children's ages. Stanford-Binet IQs were available for 43 of the 53 subjects and these were correlated with the remaining variables. Table 4 presents the obtained correlation coefficients.

As explained on page 24, partial correlations of the mother-child interaction ratings and the language measures were computed to remove the influence of age from each variable. Therefore, much of the discussion concerning these variables is reserved for the discussion of partial correlation coefficients below. The zero order correlations are presented in Table 4 for the purpose of showing certain interesting relationships among the data.

The correlation between language measures is puzzling. Although the PPVT and the Mean Length of Utterance (MLU) are two of the most respected measures of language development, in this study the correlation of PPVT raw scores and MLU is only .15. On the other hand, the Stanford-Binet IQ correlates .51 with PPVT raw scores, .39 with PPVT IQ, and .30 with MLU, all three correlations higher than that between the language measures themselves. To this investigator the correlation of .32 of Stanford IQ and age is surprising.

The intercorrelations of mother-child interaction ratings show a consistent pattern. Excluding Scales O and P, eight scales focus upon "positive behaviors" on the part of mother or child, and three scales focus upon "negative behaviors." Scale H is discussed below. Those focusing on positive behaviors are:

- A. Mother's Affectionateness
- B. Mother's Acceptance
- C. Mother's Use of Praise
- E. Mother's Rewarding of Child's Independence
- I. Mother's Use of Reasoning with Child
- J. Mother's Encouragement of Child's Verbalizations
- L. Child's Independence
- N. Child's Initiative in Verbal Communication

Those focusing upon negative behaviors are:

- D. Mother's Use of Criticism
- F. Mother's Restriction of Child's Independence
- K. Mother's Discouragement of Child's Verbalizations

The positive behavior ratings correlate positively and significantly with each other. These positive behaviors correlate negatively and

Table 4

Correlations Between Ratings on Mother-Child Interaction Scales, Age, Language Measures, and Stanford-Binet IQ

	B	C	D	E	F	H	I	J	K	L	N	O	P	Age	PPVT IQ	PPVT Raw	MLU	S-B IQ	
A	.88*	.66*	-.58*	.66*	-.40*	.25	.29*	.65*	-.56*	.50*	.48*	-.32*	.32*	-.03	.35*	.34*	.24	.54*	A
B		.69*	-.54*	.66*	-.42*	.23	.40*	.69*	-.65*	.62*	.60*	-.40*	.42*	.01	.31*	.31*	.30*	.54*	B
C			-.31*	.60*	-.17	.48*	.45*	.61*	-.33*	.60*	.53*	-.42*	.23	.04	.33*	.31*	.43*	.57*	C
D				-.57*	.59*	.36*	.16	-.29*	.58*	-.34*	-.34*	.19	-.29*	.08	-.16	-.12	-.04	-.27	D
E					-.64*	.26	.46*	.69*	-.62*	.62*	.66*	-.44*	.32*	.17	.46*	.50*	.33*	.46*	E
F						.22	-.09	-.33*	.74*	-.53*	-.46*	.21	-.35*	-.02	-.24	-.21	-.31*	-.13	F
H							.56*	.49*	.04	.19	.25	-.19	-.13	.23	.29*	.34*	.17	.36*	H
I								.65*	-.25	.56*	.55*	-.34*	.15	.26	.39*	.43*	.24	.41*	I
J									-.47*	.66*	.70*	-.44*	.29*	.23	.52*	.54*	.20	.65*	J
K										-.55*	-.44*	.48*	-.39*	-.03	-.33*	-.27*	-.26	-.27	K
L											.80*	-.42*	.51*	.22	.47*	.44*	.42*	.52*	L
N												-.35*	.44*	.17	.47*	.49*	.41*	.52*	N
O													-.49*	-.06	-.32*	-.30*	-.11	-.41*	O
P														-.07	.13	.06	.33	.37*	P
Age															.15	.53*	.15	.32*	Age
PPVT IQ																.89*	.09	.39*	IQ PPVT
PPVT Raw																	.15	.51*	R PPVT
MLU																		.30*	MLU

*Significant at $p < .05$ or less. For Scale identification, see p. 22. n = 53, except for S-B corr. n = 43.

significantly with the three negative behaviors. Similarly, the negative behaviors correlate positively and significantly with each other. Thus a consistent pattern appears. Mothers showing positive behavior in one area tend to show positive behavior in a number of areas and have children who show positive behavior. These interrelationships make it difficult to isolate various aspects of mother behavior and determine the influence of each upon the child's behavior.

The intercorrelations among the negative behavior scales D, F, and K tend to be lower than those among the positive behavior scales. These scales tended to have lower coefficients of generalizability in the multifacet analysis of generalizability than the positive scales. This is understandable because negative behaviors are often inconsistent.

Scale H presents an interesting picture. This scale, Mother's Pressure for Child's Achievement, focuses upon positive behavior unless the pressure becomes extreme, at which point it becames negative. Scale H correlates significantly with only four scales: C, D, I, and J. All of these correlations are positive, even that with D: Mother's Use of Criticism, which is a negative behavior in contrast to the other three. When a mother pressures a child, apparently she uses both praise and criticism. However, even the few significant correlations involving the H scale are low and the coefficient of generalizability for this scale (.36) is too low for its reliability to be accepted.

Partial Correlations of Language Measures and Mother-Child Interaction

Peabody Picture Vocabulary Test

Table 5 presents the results of the partial correlations of the PPVT raw scores and the ratings on the mother-child interaction scales with the influence of age removed.

Predictions were made only in relation to Scales A through N. On these scales (omitting G and M), all correlations were in the predicted direction. Correlations on 9 of the 12 scales (A, B, C, E, I, J, K, L, and N) were significant. In each case, the null hypothesis that no relationship exists between the PPVT and the interaction is rejected and the prediction is supported. Scales O and P are discussed below.

One should observe in Tables 4 and 5 that the partial correlations between the PPVT raw scores and the interaction variables are sometimes higher and sometimes lower than the zero order correlations. In relation to Scales E, H, I, J, L, and N, age correlates positively with both the interaction variable and the PPVT raw scores. Thus, when the influence of age is removed, the partial correlation is lower than the zero order correlation. In relation to Scales A, F, K, O, and P, age correlates negatively with the interaction variable

Table 5

Partial Correlations of
Peabody Picture Vocabulary Test Raw Scores
and Ratings on Mother-Child Interaction Scales
with Influence of Age Removed

n = 53

Scale	r	t	p
A. M's Affectionateness	.42	3.24	< .01
B. M's Acceptance	.36	2.71	< .01
C. M's Use of Praise	.34	2.59	< .05
D. M's Use of Criticism	-.19	1.38	n.s.
E. M's Rewarding of C's Independence	.48	3.92	< .001
F. M's Restriction of C's Independence	-.24	1.72	n.s.
H. M's Pressure for C's Achievement	.26	1.91	n.s.
I. M's Use of Reasoning with C	.36	2.70	< .01
J. M's Encouragement of C's Verbalizations	.51	4.17	< .001
K. M's Discouragement of C's Verbalizations	-.30	2.23	< .05
L. C's Independence	.40	3.04	< .01
N. C's Initiative in Verbal Communication	.48	3.83	< .001
O. M's Preoccupation with Questionnaire	-.32	2.38	< .05
P. C's Attn. Seeking During M's Preoccup.	.11	.77	n.s.

M - Mother

C - Child

so that when its influence is removed, the partial correlation is higher than the zero order correlation. In the situation of Scale D, age correlates positively with the interaction, and when its influence is removed, the negative correlation between the PPVT and the interaction becomes even more negative. In respect to Scales B and C, all relationships are positive but the partial correlation is higher than the zero order correlation. This may be because the correlation between age and interaction is negligible.

Mean Length of Utterance

Table 6 presents the results of the partial correlations of the Mean Length of Utterance scores with the ratings on the mother-child interaction scales with the influence of age removed.

Again, predictions were made only in relation to Scales A through N. On these scales (omitting G and M), all of the correlations were in the predicted direction, although the results are somewhat different from those related to the PPVT. Of these 12 correlations, 6 are significant in comparison to 9 which are significant on the PPVT. Those correlations associated with Scales B, C, E, F, L, and N are significant. In respect to these 6 scales, the null hypothesis that no relationship exists between the two variables is rejected, and the prediction is supported.

The pattern of correlations with the MLU differs from that on the PPVT. Scales A, I, J, and K correlate significantly with the PPVT but not with MLU, whereas Scale F correlates significantly with MLU but not with PPVT. Scales B, C, E, L, and N correlate with both PPVT and MLU, but Scales D and H do not correlate significantly with either.

The MLU is discussed below, with reasons advanced as to why this measure differed from the PPVT in its results.

To this investigator, it is understandable why the prediction related to Scale D: Mother's Use of Criticism, was not supported significantly in relation to either language measure; why Scale F: Mother's Restriction of Child's Independence, was supported only with the MLU; and why Scale K: Mother's Discouragement of Child's Verbalizations, was supported only with the PPVT. As pointed out above, these scales measure actions on the part of the mother which are negative, and parents' negative acts tend to be unpredictable in their results. With some children, such acts may inhibit action, including the development of language. With other children, they may stimulate development. On the other hand, a parent's positive acts--acceptance, praise, and rewarding of independence--have a more predictable effect upon a child. Even with the positive behaviors the correlations are low (although most are significant, at least on the PPVT), which suggests that other factors are operating which have not been measured, such as the quality of the language model and the intelligence of the mother. Predictions related to Scale H were not supported, probably because it is curvilinear in effect, that is, some pressure is desirable but too much pressure on the child is undesirable. Perhaps this is why

Table 6

Partial Correlations of
Mean Length of Utterance Scores
and Ratings on Mother-Child Interaction Scales
with Influence of Age Removed

n = 53

Scale	r	t	p
A. M's Affectionateness	.25	1.79	n.s.
B. M's Acceptance	.30	2.21	<.05
C. M's Use of Praise	.43	3.35	<.01
D. M's Use of Criticism	-.05	.38	n.s.
E. M's Rewarding of C's Independence	.31	2.28	<.05
F. M's Restriction of C's Independence	-.31	2.27	<.05
H. M's Pressure for C's Achievement	.14	1.98	n.s.
I. M's Use of Reasoning with C	.21	1.51	n.s.
J. M's Encouragement of C's Verbalizations	.17	1.20	n.s.
K. M's Discouragement of C's Verbalizations	-.26	1.89	n.s.
L. C's Independence	.40	3.07	<.01
N. C's Initiative in Verbal Communication	.40	3.06	<.01
O. M's Preoccupation with Questionnaire	-.10	.71	n.s.
P. C's Attn. Seeking During M's Preoccup.	.34	2.59	<.05

M - Mother

C - Child

the reliability of Scale H was too low to be acceptable.

Scales O and P

In relation to Scale O: Mother's Preoccupation with Questionnaire, and Scale P: Child's Attention Seeking During Mother's Preoccupation, no predictions were made because these two scales were not central to this study. They were added to provide another dimension to the mother-child interaction picture. Scale O was negatively and significantly related to the PPVT, and Scale P was positively and significantly related to the MLU. Interpeting the Scale O finding, apparently the mothers who were least preoccupied with the questionnaire tended to have children who were high in vocabulary development. This probably means that the mother who gives attention to the child even when she is engaged in a task helps to promote his language development. Interpreting the Scale P finding, apparently the children who sought attention when the mother was preoccupied tended to have long utterances. This was probably related to the child's initiative in stimulating verbal communication and not a dependency bid, since children who were rated the highest in independence and also in initiative in verbal communication tended to have the longest utterances. Children who had the shortest utterances tended to interact very little with the mothers. For example, Subject 31, who received the lowest MLU and PPVT raw scores, was the child mentioned previously who made no attempt to interact with the mother as she filled out the form.

It has become obvious to this investigator, who developed Scales O and P, that they were poorly constructed. On both scales, the most ideal behavior would probably be at the middle range of the scale. Thus, the most desirable action on the part of the mother would be for her to become somewhat absorbed in filling out the form but be willing to be interrupted occasionally to respond to the child. The most desirble action on the part of the child, that is, reflecting well adjusted behavior, would be for the child to occupy himself with the toy without making excessive demands on the mother, yet not be too fearful or passive and make no advances at all. These two scales should be revised, so that the low end of the scale reflects undesirable behavior and the high end desirable behavior. This would necessitate their division into two scales each.

Sex Differences

The data were separated for the boys and the girls and analyzed separately for each sex. Table 7 gives the means and standard deviations on all measures for boys and girls. There is only a slight difference in age (.08 of a year) between boys and girls. The mean of the girls is slightly higher on most measures. In only two instances is the difference between the two means significant ($p < .05$). The girls are significantly higher than the boys on the Mean Length of Utterance measure. They are somewhat higher on the PPVT also but not significantly so. This differs from the previous findings on Negro boys and girls mentioned previously in which Negro boys were superior to Negro girls.

Table 7

Means and Standard Deviations
for Boys and Girls

Variable	Boys		Girls	
	Mean	SD	Mean	SD
PPVT IQ	77.20	13.56	81.42	12.36
PPVT Raw	15.35	8.76	19.55	9.63
MLU	2.28*	.72	2.79*	.78
Age (in years)	3.00	.29	3.08	.29
A. M's Affectionateness	4.64	.69	4.76	.72
B. M's Acceptance	6.70	.80	6.80	.69
C. M's Use of Praise	2.81	.95	2.77	1.07
D. M's Use of Criticism	2.89	.79	2.95	1.02
E. M's Reward of Independence	4.76	1.02	4.90	1.12
F. M's Restriction of Independence	5.51	.93	5.11	.75
H. M's Pressure for C's Achievement	5.89	.64	5.82	.58
I. M's Use of Reasoning	2.93	1.08	2.96	1.04
J. M's Encouragement of Verbalizations	5.53	.86	5.45	.61
K. M's Discouragement of Verbalizations	2.47	1.11	2.36	.61
L. C's Independence	4.57	1.09	4.74	.92
N. C's Initiative in Verbal Communication	4.95	1.11	4.95	1.11
O. M's Preoccupation with Questionnaire	6.38	2.06	6.71	1.52
P. C's Attn. Seeking During M's Preoccup.	4.49*	1.66	5.66*	1.65
Stanford-Binet IQ	86.68	10.69	91.00	12.11
M's Education	10.80	1.71	10.94	2.15
C's Ordinal Position in Family	4.20	2.07	4.42	2.25
Number of Children in Family	4.95	2.21	5.06	2.26

For all variables except Stanford-Binet, for boys n = 20, for girls n = 33
For the Stanford-Binet IQ, for boys, n = 17, for girls, n = 26

*Mean of girls significantly higher than mean of boys ($p < .05$)

On Scale 6: Child's attention Seeking During Mother's Preoccupation with Questionnaire, the girls were also significantly higher than the boys. Apparently when the mother is preoccupied, girls seek attention more than boys.

The correlations between the ratings on mother-child interaction scales, age, language measures, and Stanford-Binet IQ are presented on Table 8 (boys) and Table 9 (girls). At this point the discussion will center on the inter-correlations among the rating scales. The relationships between the mother-child ratings and the language measures were computed as partial correlations and these will be discussed below. On Tables 8 and 9, in general the inter-correlations among the scales are higher for the boys than the girls. In addition, 19 of the 21 correlations are significant ($p < .05$) or less) for the boys, whereas for the girls only 14 correlations are significant, even though the sample size of the boys is smaller (20) than the girls (39) so that the correlations for the boys must be higher to be significant. Age shows a higher correlation on many measures for the boys.

The correlations between mother-child ratings and age also results which impressed this investigator. There are four scales on which the correlations between the scale and age is significantly different for the boys and the girls. These correlations from Tables 8 and 9 are presented below:

	Corr. with Age	
	Boys	Girls
A. M's attentiveness	.38	-.29
B. M's annoyance	-.38	+.07
C. M's Use of Praise	.49*	-.17
D. M's Use of Criticism	-.37	.07

Only the correlation for the boys between Scale C and age is significant ($p < .05$). However, for Scales A, B, and C, the correlations for the boys are positive and for the girls are negative; for Scale D this is reversed. For these four scales, this difference is significant ($p < .05$) as computed from the formula given for the difference between two correlation coefficients (Walker, 1943, pages 127-128). None of the differences in the correlations between Scale D-F and age are significant.

These author's interpretations of the above data are as follows: In relation to Scales A, B, and C, in this sample, the mothers of the older boys show more attention, more annoyance, and more use of praise with these boys than the mothers of the younger boys show toward them. For the girls, this is reversed. The mothers of the older girls show less attention, less annoyance, and less use of praise toward these girls than the mothers of the younger girls show. For Scale D, the pattern is reversed. The mothers of the older boys use less criticism with them than the mothers of the younger boys use. The mothers of the older girls use more criticism with these girls than the mothers of the younger girls use. Does this mean that for this population between 24 and 36 years of age, the older

Table 6

Correlations Between Ratings on Mother-Child Interaction Scales, Age, Language Measures, and Stanford-Binet IQ

For Boys

	B	C	D	E	F	G	H	I	K	L	M	O	P	Age	PPVT IQ	PPVT Raw	RLD	
A	.87*	.78*	-.79*	.77*	-.62	.24	.58*	.80*	-.62*	.67*	.73*	-.34	.35	.30	.54*	.72*	.66*	A
B		.78*	-.75*	.82*	-.58*	.18	.58*	.82*	-.72*	.71*	.74*	-.66*	.35	.30	.58*	.77*	.35	B
C			-.38	.52*	-.08	.54*	.48*	.69*	-.26	.63*	.65*	-.34	.14	.45*	.53*	.73*	.36	C
D				-.63*	.48*	.29	-.33	-.44	.71*	-.54*	-.65*	.35	-.36	-.37	-.25	-.43	-.32	D
E					-.72*	.32	.64*	.80*	-.64*	.62*	.83*	-.54*	.36	.37	.52*	.73*	.53*	E
F						.37	-.37	-.63*	.85*	-.58*	-.67*	.39	-.42	-.27	-.19	-.25	-.41	F
G							.41	.43	.19	.10	.40	-.06	-.14	.29	.19	.33	.20	G
I								.78*	-.59*	.60*	.74*	-.44	.37	.28	.57*	.62*	.40	I
J									-.58*	.76*	.85*	-.47*	.51*	.38	.62*	.75*	.43	J
K										-.64*	-.57*	.56*	-.41	-.20	-.43	-.48*	-.45*	K
L											.73*	-.48*	.65*	.39	.50*	.56*	.49*	L
M												-.49*	.51*	.39	.66*	.85*	.55*	M
O													-.64*	-.21	-.28	-.42	-.28	O
P														.14	.24	.25	.40	P
Age															-.27	.19	.37	Age
PPVT IQ																.86*	.17	IQ
PPVT Raw																	.28	R
RLD																		RLD

*Significant at p < .05 or less. n = 20 For scale identification, see p. 22.

Table 9

Correlations Between Ratings on Mother-Child Interaction Scales, Age, Language Measures, and Stanford-Binet IQ

for Girls

	B	C	D	E	F	H	I	J	K	L	M	O	P	Age	PPVT IQ	PPVT Raw	MLU	
A	.86*	.63*	-.51*	.60*	-.30*	.27	.14	.56*	-.57*	.39*	.34	-.33	.29	-.29	.22	.13	.10	A
B		.70*	-.43*	.56*	-.33	.27	.27	.50*	-.61*	.55*	.51*	-.36*	.47*	-.27	.10	.01	.26	B
C			-.29	.64*	-.28	.46*	.44*	.58*	-.43*	.60*	.48*	-.49*	.31	-.17	.23	.13	.51*	C
D				-.56*	.65*	.40*	.33	-.22	.57*	-.26	-.29	.10	-.31	.27	-.13	-.01	.06	D
E					-.61*	.30	.37*	.65*	-.51*	.62*	.58*	-.41*	.29	.06	.42*	.39*	.22	E
F						.08	.14	-.25	.63*	-.48*	-.48*	.10	-.22	.22	-.22	-.12	-.15	G
H							.67*	.55*	-.14	.28	.16	-.31	-.11	.20	.38*	.38*	.19	H
I								.56*	.10	.40*	.43*	-.28	.01	.25	.27	.33	.16	I
J									-.33	.59*	.59*	-.40*	.18	.12	.47*	.47*	.08	J
K										-.44*	-.35*	.40*	-.41*	.17	-.22	-.08	-.08	K
L											.86*	-.38*	.43*	.09	.43*	.36*	.37*	L
M												.25	.43*	.04	.35*	.32	.37*	M
O													-.50*	.03	-.40*	-.28	-.05	O
P														-.28	-.02	-.16	.17	P
Age															.39*	.69*	-.03	Age
PPVT	IQ																.90* -.03	IQ PPVT
	Raw																-.01	R

*Significant at $p < .05$ or less.

n = 33

For scale identification, see p. 22.

the boy becomes the more affection, more acceptance, more praise, and less criticism is shown by the mother, while the older the girl becomes the less affection, less acceptance, less praise, and more criticism is shown by the mother? This might be true, but since this study was not longitudinal, one cannot draw this conclusion on the basis of this data.

In relation to the inter-correlations among ratings, there are differences between the boys and girls but only two of these differences are significant:

(1) The correlation between Scale I: Mother's Use of Reasoning, and Scale K: Mother's Discouragement of Verbalizations, is -.59 for the boys and .10 for the girls, the difference between these two correlations being significant ($p < .05$). Apparently with the boys, the more the mothers use reasoning, the less they discourage verbalizations (a significant relationship), and with the girls there is a slight tendency in the opposite direction--the more the mother's reason, the more they discourage verbalizations.

(2) The correlation between Scale N: Child's Initiative in Verbal Communication, and Scale O: Mother's Preoccupation with Questionnaire, is -.49 for the boys and .25 for the girls, the difference between these two correlations being significant ($p < .01$). Apparently with the boys, the more the child takes the initiative in verbal communication in the first five tasks, the less the mother is preoccupied with the questionnaire during the sixth task, and with the girls, the more the child takes the verbal initiative, the more the mother is preoccupied.

Table 10 presents the partial correlations of the language measures and the interaction ratings with the influence of age removed for both boys and girls. The partial correlations with the PPVT Raw scores are higher for the boys than the girls on all but three scales, and on the MLU also higher for the boys on all but three scales. Again, because the sample of boys is smaller than the sample of girls, correlations must be higher to obtain significance. The data on this table are interpreted as follow:

(1) Relationships with PPVT Raw scores: For the boys, the mother's affectionateness, acceptance, use of praise, reward of independence, use of reasoning, and encouragement of verbalizations are positively related to vocabulary. The mother's discouragement of verbalizations is negatively related to the PPVT. The child's independence and initiative in verbal communication are positively related to vocabulary. For the girls, the mother's affectionateness, use of praise, reward of independence, and encouragement of verbalizations are positively related to the vocabulary score. The mother's restriction of independence and preoccupation with the questionnaire are negatively related to PPVT. The child's independence and initiative in verbal communication are positively related to the PPVT, as was true of the boys.

(2) Relationships with MLU: For the boys, the only two significant relationships between interaction ratings and MLU are the mother's

Table 10

Partial Correlations of
Language Measures and
Mother-Child Interaction Ratings
with Influence of Age Removed
for Boys and Girls

Scale	PPVT Raw		MLU	
	Boys	Girls	Boys	Girls
A. M's Affectionateness	.71***	.47**	.37	.10
B. M's Acceptance	.77***	.29	.24	.26
C. M's Use of Praise	.73***	.35*	.23	.51**
D. M's Use of Criticism	-.40	-.29	-.22	.07
E. M's Rewarding of C's Independence	.70***	.49**	.46*	.22
F. M's Restriction of C's Independence	-.21	-.39*	-.35	-.14
H. M's Pressure for C's Achievement	.29	.33	.11	.20
I. M's Use of Reasoning with C	.61**	.23	.34	.17
J. M's Encouragement of Verbalizations	.73***	.53**	.33	.08
K. M's Discouragement of Verbalizations	-.46*	-.28	-.42	-.08
L. C's Independence	.54*	.42*	.40	.37*
M. C's Initiative in Verbal Commun.	.84***	.41*	.48*	.37*
O. M's Preoccupation with Questionnaire	-.40	-.41*	-.22	-.05
P. C's Attn. Seeking During M Preoccup.	.23	.05	.38	.17

Significance according to t test: * $p < .05$
** $p < .01$
*** $p < .001$

Boys: n = 20 Girls: n = 33

rewarding of independence and the child's initiative in verbal communication is positively related to his mean length of utterance. In relation to the girls, the mother's use of praise, and the child's independence and initiative in verbal communication are positively related to the mean length of utterance.

This author concludes that these low-income Negro mothers treat boys and girls differently in several ways and that these result in sex differences in the relationships between mother-child interaction ratings and language measures. Although the girls are slightly higher on the PPVT than the boys and significantly higher on the MLU, the boys are apparently more affected by the interaction with the mother.

Supplementary Information

Supplementary information about the child and his family was secured with the use of the Child Information Form and the Child and Family Information Form (see Appendix C). Most of this information was too vague and non-specific to permit analysis, but the data obtained regarding the education of the mother, the child's ordinal position in the family, and the number of children in the family were specific. Product moment correlations of these variables and the language measures were computed. The results are presented in Table 11. None of the correlations were significant. Apparently, for the 53 subjects in this study there was no relationship between the child's language performance as measured by the PPVT and MLU and the mother's education, the child's ordinal position in the family, or the number of children in the family. This may be because the mother's education variable showed little variation, and because first-born and only children were excluded from the study. Language development is often more advanced in first-born and only children. Whether the child is the third of four children or the sixth of eight children probably does not make much difference.

Data were also available regarding the presence or absence of the father in the home. The subjects were classified on the basis of father-present and father-absent homes and the mean of the language scores for each group was calculated. Results are presented in Table 12. There was no significant difference between the means of the two groups. The mean score for the father-present group was higher than the mean score for the father-absent group on both measures but the difference was not significant, according to the t test for the significance of the difference between independent means (McNemar, 1969, pages 114-115). The conclusion was therefore reached that, for this sample, there was no relationship between language performance and presence of the father in the home. This is not surprising to this investigator, who knew many of these families through the subsequent preschool program. Some fathers who did not live in the home visited frequently, and others who did live in the home were sometimes not home enough hours to have much interaction with their small children. Therefore, the difference in interaction between father and child in father-present homes and father-absent homes may not

Table 11

Correlations* of Language Measures
With Education of Mother,
Child's Position in Family,
and Number of Children in Family

Variable	Corr. with PPVT IQ	Corr. with MLU
Education of Mother	.00	.25
Child's Ordinal Position in Family	.04	.00
Number of Children in Family	-.04	-.03

n = 53

*No significant correlations according to t test.

Table 12

Group Means of Language Measures and Age
According to Presence or Absence of Father

Variable	PPVT IQ Group Mean	t*	MLU Mean	t*	Mean Age	t*
Father Present	82.43	1.27 n.s.	2.77	1.41 n.s.	3.06	.12 n.s.
Father Absent	77.83		2.46		3.05	

Father present, n = 23
Father absent, n = 30

*t for differences between the means.

have been significant. The quantity and quality of the father-child interaction in these homes would be impossible to determine without intimate knowledge of the families.

Discussion of Language Measures

A few points should be discussed regarding the administration and analysis of the two language measures which can contribute to an understanding of why the results differ according to the predictions.

This investigator has come to the conclusion that the results involving the use of the Mean Length of Utterance measure reflect the problems encountered in the use of this measure. Some of the factors and problems which may have influenced the results are as follows:

(1) Altogether nine different speech therapists were used to secure the speech samples. These therapists varied in their techniques and their ability to relate to the children. They were all Caucasian. Some of the children had had little contact with Caucasians and with strangers prior to the testing. In addition, some of the therapists had difficulty understanding the children's speech. Sometimes a therapist repeated a child's utterance incorrectly, or responded to him in a way which made it obvious that she misunderstood his remark. This probably inhibited the child's verbalizations. These sources of variability probably added to the error of measurement.

(2) The language samples were first analyzed by linguists. As the analysis proceeded it became obvious that these linguists were having difficulty understanding the speech of Negro children $2\frac{1}{2}$ to $3\frac{1}{2}$ years of age. Two preschool teachers, one Negro and one Caucasian, who were familiar with the children's speech patterns, helped with the transcriptions and it was possible to fill in gaps where the linguists could not understand the children, but some utterances were still unintelligible.

(3) The rules drawn up by Brown and associates were the principal ones followed in computing the Mean Length of Utterance scores. This count includes many one-word responses such as "What?" and "Huh?" A number of children frequently asked "Huh?" or "What?" when they did not understand the speech therapist who spoke a different dialect from the one they were accustomed to hear. The large number of one-word responses resulting affected the MLU scores more for some children than others, reducing the reliability of this measure in relation to the child's actual level of language development. This measure should be recalculated to determine whether the one-word responses such as "Huh?" and "What?" influenced the situation.

Despite Cazden's statement that the validity of the MLU "rests on the widespread finding that it increases with age" (1965, p. 99), in this

study the correlation between the MLU scores and the children's ages was only .15. The correlation between the two language measures, the PPVT raw scores and the MLU scores, was only .15. Thus the two language measures used in this study do not show a statistically significant relationship to each other. The PPVT raw scores show a higher correlation with age (.53) than do the MLU scores (.15). The PPVT raw scores also correlate higher with the Stanford-Binet (.51) than the MLU does (.30). The lack of correlation with age and other measures, as well as the problems related to the administration and analysis of the MLU, have led this investigator to question the validity and reliability of the MLU scores obtained in this study.*

In contrast, the testers found the Peabody Picture Vocabulary Test easy to administer. Even children who were shy with strangers seemed able to point to the appropriate picture. The PPVT is objective and easy to score. As described above, securing a language sample for the MLU measure is difficult with young shy children, transcribing the language sample is extremely difficult and time-consuming, and sometimes arbitrary decisions must be made concerning what constitutes an utterance and the scoring of certain morphemes. Because of the difficulties in securing and analyzing the speech samples of young Negro children in this study, this investigator did not find this a reliable, easily determined, and objective measure as it has been described by McCarthy (1954, pp. 550-51). Recommendations for the use of the MLU measure are made in Chapter IV.

Examples Illustrating the Findings

The following are some examples from the mother-child interaction tapes which illustrate some of the findings. The first (from Subject #23, Task II) is an example of a mother who shows warmth and acceptance, and who uses suggestions and praise to help the child. This subject had a PPVT IQ near the mean and the highest MLU in the sample. This example illustrates the finding that the level of language development (as measured by MLU) is related to the mother's acceptance and use of praise. In the following excerpt, the mother and child are beginning the jigsaw puzzle task.

M: Come on, fix the puzzle, honey. Put 'em in the right spaces, hear? Now find something and see where it go. ..... Yes. OK, get that one. No, get the car, Son. That's the car? OK, put it in the puzzle. ..... Put it down in. Oh, that's--see that? Isn't that nice? That fitted.

C: And this?

M: Oh, you're doin' good! You got a bear now. Oh, I know she knew how to fix that. ..... Why, you're doing nice.

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*Since this study was initiated in 1966 there has been less emphasis on the Mean Length of Utterance as a measure of language development and more use of various kinds of structural analysis. Cowan, Weber, Huddleott, and Klein (1967) have pointed out the inadequacies of the Mean Length of Response research. They point especially to stimulus and examiner variables which affect results.

In contrast, the following (from Subject #33, Task II) is another mother attempting to help her child, using little positive reinforcement such as praise. This child had the most delayed language development of all the children on both measures. This example illustrates the finding that a low level of language development is associated with lack of praise. This mother focuses far more on the negative than on the positive. This mother and child are also engaged in the jigsaw puzzle task.

M: No, don't take the pieces out. Put 'em back in. Put them back in. Put them back in the place. ..... Get the other one in. .... No, they don't go like that. Get another one. No. ..... No. Go up above. Go way up there. No. Go way up. No, don't fit right there. Go up on top of these here. It's up here somewhere. No. Put it right in here somewhere. Get it in there. See, it's right in here. The next one. Put it in the other one. No, not that one, the next one. Yeah! See? ..... Uh huh. Get the other one now.

The next example (from Subject #42, Task I) is a mother encouraging verbalizations with questions. It illustrates the relationship of Scale J: Mother's Encouragement of Child's Verbalizations, to a high level of language development. This child had the highest PPVT IQ and a MLU score above the mean. This mother and child are talking on the telephone.

M: Have you been cleaning up the house?
C: Yeah, been working, too, to clean out the house.
M: What did you do?
C: See, I be--be--I be--I be pick up, I play some--uh--I give some by--a--a--I 'weep floors, I pick up, I make bed--people bed up.
M: Oh, you sweep floors and make beds. What else did you do?
C: Wash dishes.
M: Wash dishes?
C: I cut my--I--I--I cut my finger on a knife.
M: You did?
C: Yeah.
M: How did you do that?
C: He--my hand be right in the dishes, and--and knife be right here, standin' up, uh (makes noise like slashing), there this!

The final example is the use of reasoning by a mother with her child (Subject #4, Task II). This illustrates the finding that reasoning used by the mother is related to high language performance in the child. This child was high in both PPVT IQ and MLU. The child is trying to place the pieces in the jigsaw puzzle.

C: Where put this at?
M: What is that?
C: Car.

M: You have to turn it the right way if you wanna get it in. That's upside down.
C: Huh uh (no).
M: That's not the right side. That's ..... side ..... Now turn it the right direction.
C: Where? ..... I can't.
M: Does a car go upside down?
C: No.
M: Well, turn it around right. How's does a car look to you?
C: Wait. .....
M: Not that way.
C: Don't go in here.
M: Turn it the right way and see.

Further transcriptions from the mother-child interaction tapes and the observer tapes are given in Appendix E. Selections were made from among children scoring high on the language measures and children scoring low on the language measures, as indicated in the preface to Appendix E.

Conclusions and Recommendations

This study was an attempt to assess the relationship between various aspects of mother-child interaction and the language performance of young disadvantaged children as represented by a low-income Negro sample. Subjects were 53 children $2\frac{1}{2}$ to $3\frac{1}{2}$ years of age, second or later in birth order, and their mothers who lived in a community with a high proportion of low-income and minority group families.

Two language measures were secured on the children: the Peabody Picture Vocabulary Test, and a language sample secured in the home and analyzed for Mean Length of Utterance in morphemes. A structured mother-child interaction session consisting of six tasks was observed. Both the mother-child interaction and the observer's description of the interaction were tape recorded and transcribed.

Two raters were given the mother-child interaction tapes and the typed transcriptions and asked to rate the interaction on 16 rating scales.

When the ratings for 23 of the 53 subjects were completed, a multifacet analysis of generalizability was computed of the ratings in order to secure coefficients of generalizability for each scale (a measure of reliability), and to determine the various sources of variance. On the basis of this analysis, Scales G and N were abandoned because the subject variance was low and the error variance high, several scales were revised, and Task VI was omitted for scales where task variance was high or data were missing. When ratings were completed for all 53 subjects (with re-ratings for the first 23 where scale revisions were made), the multifacet analysis of generalizability was repeated.

Reliability for Scale H (.36) was unsatisfactory. Coefficients for the remaining scales ranged from .61 to .84.

Partial correlations were computed of the mother-child interaction ratings with the children's Peabody Picture Vocabulary Test scores and then with the Mean Length of Utterance scores, with the influence of age removed from each variable.

The results of the correlations between the Peabody Picture Vocabulary Test scores and the mother-child interaction ratings of the sample indicate that the following predictions made by this investigator are supported: Young low-income Negro children who score comparatively high in language performance (vocabulary) tend to come from families in which the mothers are rated high in affectionateness, acceptance of the child, use of praise, rewarding of the child's independence, use of reasoning with the child, and encouragement of the child's verbalizations. Children high in vocabulary also are rated high in independence and initiative in verbal communication. Conversely, the children who score comparatively low in language performance tend to come from families in which the mother-child interaction is the reverse of the mother and child variables described above.

Additional findings related to the PPVT were that the following predictions were supported inadequately, although trends were in predicted directions: that those children who score comparatively high in vocabulary come from families in which the mothers are rated low in such factors as use of criticism, and restriction of the child's independence. There was a significant relationship between the children's scores on the PPVT and the mother's preoccupation with an assigned questionnaire in a negative direction, but no relationship between the PPVT scores and the child's attention seeking during the mother's preoccupation with the form. The scales purporting to measure mother's rewarding of child's dependency, mother's pressure for child's achievement, and child's dependency turned out to be inadequate and have not been pursued.

The results of the correlations between the Mean Length of Utterance scores and the mother-child interaction ratings of the sample indicate that the following predictions made by this investigator are supported: Young low-income Negro children who score comparatively high in language performance (length of utterance) tend to come from families in which the mothers are rated high in such factors as acceptance of the child, use of praise, and rewarding of the child's independence, and low in restriction of the child's independency. The children high in mean length of utterance are rated high in independence and initiative in verbal communication. Conversely, the children who score comparatively low in language performance (MLU) come from families in which the mother-child interaction is the reverse of the previous description.

Additional findings related to the MLU were that the following predictions were supported inadequately although trends were in

predicted directions: that those children who score comparatively high on a length of utterance measure come from families in which the mothers are rated high in affectionateness, use of reasoning, and encouragement of the child's verbalizations, and low in such factors as use of criticism and discouragement of the child's verbalizations. There was no significant relationship between the children's scores on the MLU measure and the mother's preoccupation with the assigned questionnaire. However, there was a significant positive relationship between MLU scores and the child's attention seeking during the mother's preoccupation with the questionnaire.

It is suggested that the lack of support on one or both measures for the predictions of a relationship between language performance and the mother's negative behaviors--use of criticism, restriction of the child's independence, and discouragement of the child's verbalizations may be because the effects of parents' negative behaviors upon children are varied whereas positive behavior is more consistent and predictable in its effects upon children.

The intercorrelations of the mother-child interaction ratings showed that the positive behaviors of both mothers and children were correlated significantly and positively with each other and these were correlated negatively with the mothers' negative behaviors. The negative behaviors of the mothers were correlated positively with each other and negatively with positive mother and child behaviors. The intercorrelations suggest interwoven patterns of mother and child behaviors and make it difficult to isolate the relationship of single factors to the child's language performance. The precautions taken to avoid rater bias suggest that this may be the actual state of affairs rather than an artifactual "halo" effect.

An analysis of sex differences revealed that the girls scored significantly higher on the Mean Length of Utterance measure than the boys but their scores on the vocabulary measure were not significantly higher. The relationships of the mother-child interaction ratings with the language measures separately by sex followed the findings for the overall group in general. Fewer relationships were significant because of the smaller size of the samples. For the boys there were more significant relationships between mother-child interaction and the vocabulary measure than there were for the girls.

Several other significant findings appeared as sex differences. Girls sought significantly more attention than boys when the mother was preoccupied with the questionnaire. With the boys, the more the child takes the initiative in verbal communication on the first five tasks, the less the mother is preoccupied with the questionnaire, whereas, with the girls, the more the child takes the verbal initiative, the more the mother is preoccupied. The more the mothers use reasoning with the boys, the less they discourage verbalizations, but the more they use reasoning with the girls, the more they discourage verbalizations.

The correlations of mother-child interaction with age separately by sex showed interesting results. The mothers of the older boys showed

more affection, more acceptance, more use of praise, and less use of criticism with these boys than the mothers of the younger boys showed with them during the observation session. However, the mothers of the older girls showed less affection, less acceptance, less use of praise, but more use of criticism with these girls than the mothers of the younger girls showed during the observations.

The analysis of supplementary data revealed that Stanford-Binet IQ scores correlated significantly with PPVT raw scores (.49) and PPVT IQ scores (.36), and also with MLU scores (.31). However, MLU scores and PPVT raw scores showed a correlation of only .5 (non-significant). The problems encountered in securing and analyzing language samples for the Mean Length of Utterance measure from $2\frac{1}{2}$ to $3\frac{1}{2}$ year-old Negro children probably reduced the validity and reliability of the MLU scores. This is reflected in its low correlation with the PPVT, with the Stanford-Binet IQ, with age (.16) and with the mother-child interaction variables, as compared with the PPVT.

Additional supplementary data gave the following results: there were no significant correlations between the two language measures and mother's education, child's ordinal position in the family, and number of children in the family. Children whose fathers were present in the home were not significantly superior in language performance to children whose fathers were absent.

The most powerful variables associated with level of language performance in this study were the mother's acceptance, use of praise, and rewarding of independence, and the child's independence and initiative in verbal communication. In general, this research study supports the view that the positive actions and qualities of a mother such as acceptance of the child and use of praise are effective in stimulating the child's language development, but that negative actions such as use of criticism and discouragement of verbalizations tend to inhibit development or are unpredictable in their effects.

There is a strong possibility of a mother and child dyadic relationship, in which the mother and child influence one another. To what extent the child's reactions patterns are inborn and to what extent they are shaped by environmental factors is not possible to determine from this study but the strength of the child variables, independence and verbal initiative, shown here suggests a possible influence upon the child's language development working from child to mother, rather than the reverse.

The 53 children in this sample, like other disadvantaged children, show much inter-subject variation. Generalizations regarding all disadvantaged children have been found to be in error with particular groups and individuals, and are misleading if applied too widely. The language scores of the children in this study ranged from 1 to 49 for the PPVT raw scores (Mean = 18.08) and from 1.1 to 4.2 for the MLU scores (Mean = 2.59). In the mother-child interaction sequences, mother behavior showed wide variation, from warm, accepting, and intellectually stimulating mothers to other mothers who appeared to reject their children or who were unable to work with their children

on tasks. This observer is of the opinion that despite minority group and low economic status of the families, a number of these children could not be called "socially disadvantaged." The healthy and positive mother-child interaction and the high language scores show that some of these children have not suffered "disadvantage" in these areas, although they are disadvantaged economically.

Recommendations for the use of the Mean Length of Utterance measure, as a result of this study, include: (1) one person skilled in language measures and able to relate easily to young children should collect all samples; (2) the tester should be of the same racial or cultural group as the children so that there is no barrier and she can more easily understand the speech dialect of the children; (3) recording equipment should provide a high recording fidelity to provide ease in transcribing the tapes; (4) tapes should be transcribed by linguists familiar with the speech of very young children and with the particular dialect spoken by the children; and (5) sufficient time and funds should be provided for the lengthy process of transcribing these tape recordings.

This investigator suggests that this study supports recommendations which may be communicated to parents, especially disadvantaged parents, regarding stimulation of children's language development. Parents can be encouraged to talk to their children, to discuss their children's experiences with them and help make these experiences meaningful, to listen to children and respond to what their children say. Parents can be encouraged to use questions, praise and other reinforcement to stimulate verbalizations. They can also be helped to promote children's independence within appropriate limits. Through programs of parent education, participation, and counseling, parents can be helped toward greater acceptance of their children. The results should be rewarding to parents, children, teachers, and counselors.

These findings not only have implications for parents, but they can also influence the work of teachers who work with young children. The experience of this investigator has been that teachers often try to talk a great deal to young children but they do not often enough listen to children and try to draw out their verbalizations, showing interest and asking questions. Social reinforcement is a valuable technique for stimulating language development. In general, this study supports the use of positive rather than negative techniques with children in relation to language development.

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APPENDIX A

Rules for Determining Mean Length of Utterance in Morphemes

1. Only full transcribed utterances are used; none with omissions.

2. Include all exact utterance repetitions. Stuttering is marked as repeated efforts at a single word; count the word once in the most complete form produced. In the few cases where a word is produced for emphasis or the like (e.g., no, no, no) count each occurrence.

3. Do not count such fillers as mm or uh, but do count no, yeah, hi and oh.

4. All compound words (two or more free morphemes), proper names, and ritualized reduplications count as single words. Examples: telephone, rackety-boom, choo-choo, quack-quack, night-night, pocketbook, see-saw. Justification is that no evidence that the constituent morphemes function as such for these children.

5. Count as one morpheme all irregular pasts of the verb. Examples: got, did, went, saw, etc. Justification is that no evidence that the child relates these to present forms.

6. Count as one morpheme all diminutives (doggie, Mommie, etc.) because these children do not seem to use the suffix productively. Diminutives are the standard forms used by the child.

7. Count as separate morphemes all auxiliaries. For example: is, have, will, can, must, would. Also all catenatives: gonna, wanna, hafta, also lemme and gimme. These latter counted as single morphemes rather than as going to or want to because evidence is that they function so for the children.

8. Count as separate morphemes all inflections. For example: possessive, plural, 3rd person singular, regular past, progressive. All regular verb endings (ed, s, ing and en) were counted separately.

9. Contracts of auxiliary verbs and not, such as don't, can't and won't, were counted as one morpheme, because there is evidence that developmentally they appear as a "chunk" before the appearance of the corresponding affirmative.

10. The specific contractions it's, dat's and what's (often pronounced iss, das and whas) were counted as one morpheme because of the appearance of such utterances as Das ones go here and Whas is dis?.

All other contractions with auxiliaries were counted as two morphemes, e.g., I'll and who's.

11. Pronouns were counted as more than one morpheme is the constructive nature of the word was obvious. So yours was counted as three morphemes (you + r + s), but his was counted as one.

12. All plural suffixes were counted separately, except in the few cases where no plural meaning seemed likely, as in scissors or pants.

13. Words were counted as two morphemes when it seemed likely that the separate elements were meaningful to the child. E. g.:

candlestick	washcloth	boyfriend	sailboat	myself
something	bathroom	bubblegum	haircut	cowboy
blackboard	airplane	doughnut	nobody	another

14. Other words were counted as only one morpheme. E.g.:

telephone	lollipop	sandwich	Santa Claus
Christmas	handkerchief	breakfast	jack-o-lantern
band-aid	Humpty-Dumpty	kool-aid	ABC
almost	backward	yesterday	already
today	tomorrow	because	around

Note:
These rules were adapted from Roger Brown (1967) and Courtney Cazden (1965).

APPENDIX B

Rating Scales for Mother-Child Interaction

Scale Adapted from Baldwin, Kalhorn and Breese, 1949

A. Mother's Affectionateness

Scales Adapted from Hess, Shipman, Brophy and Bear, 1968

B. Mother's Acceptance
C. Mother's Praise
D. Mother's Criticism

Scales Adapted from Sears, Rau and Alpert, 1965

E. Mother's Rewarding of Child's Independence
F. Mother's Restriction of Child's Independence
G. Mother's Rewarding of Child's Dependency
H. Mother's Pressure for Child's Achievement
I. Mother's Use of Reasoning with Child
L. Child's Independence
M. Child's Dependency

Scales Constructed by Investigator of This Study

J. Mother's Encouragement of Child's Verbalizations
K. Mother's Discouragement of Child's Verbalizations
N. Child's Verbal Communication
O. Mother's Preoccupation with Questionnaire
P. Child's Attention Seeking During Mother's Preoccupation

(See Scales A-P, Pages 66-81)

A. Rating Scale for Mother's Affectionateness

Rate the mother's expression of affection to the child personally. Does she manifest an intense personal affection to the child; a warm, temperate emotion; or a cool aloof attitude?

a. Location. What is her most typical behavior?

1. Cool, aloof, distant.

2.

3. Objective, inhibited, neutral, matter-of-fact.

4.

5. Temperate, fond, attached, forgiving, kind.

6.

7. Affectionate, warm, fondling, loving, expressive.

8.

9. Passionate, consuming, intense, ardent, uncontrolled.

b. Range. How far did her emotional behavior range during this interaction?

Between _____ and _____.

Adapted from Fels Parent Behavior Rating Scale 8.3
(Baldwin, Kalhorn and Breese, 1949).

B. Rating Scale for Mother's Acceptance

What basic emotional attitude toward the child underlies the mother's reaction to him? Rate independently of the mother's overt affectionateness.

1. Total rejection. The child is excluded from maternal acceptance, treated with sarcasm, cynicism, hostility.

2. The mother tends to belittle the child and his behavior, seeing him as an unpleasant burden to her.

3. The mother shows by her actions that she doesn't see the child as very worthwhile. Although she may react positively toward him at times, she never shows unqualified acceptance of him as a person.

4. The mother apparently doesn't accept the child, but she doesn't convey rejection overtly. While she is not hostile, she doesn't express much interest in the child and doesn't seem to enjoy his company.

5. No basic attitude shown. The mother is impersonal, unemotional, detached in her relationship with the child.

6. The mother apprears to accept the child but she does or says little to convey this.

7. The mother basically accepts her child as a person, although she rejects him when he acts against her wishes. Withdrawal of acceptance may be used as a control technique.

8. Near-total acceptance. For example, only resistance toward the mother can endanger the child's acceptance.

9. Total acceptance. The mother accepts her child as a desirable, worthwhile person regardless of his behavior.

Adapted from Hess et al., 1968, p. 311.

C. Rating Scale for Mother's Praise

Rate the mother's tendency to praise the child's behavior during the tasks, conveyed both in words and tone. Does the mother lavish praise upon the child, or does she allow his successes to go unacknowledged? Rate independently of the mother's tendency to criticize the child.

1. Mother never praises the child nor shows approval, either in words or tone, beyond the feedback level throughout the tasks.

2.

3. Mother praises very little and/or shows little approval in words or tone, offering only one or two compliments beyond the feedback level.

4.

5. Mother praises the child occasionally and/or shows moderate approval in words or tone. She tends to praise the child's more important accomplishments but responds to his minor actions with simple feedback.

6.

7. Mother praises somewhat frequently and/or shows fairly enthusiastic approval, either in words or tone, rewarding the child when he concludes both important actions and significant subsections of the tasks.

8.

9. Mother praises the child frequently and/or shows enthusiastic approval, rewarding even the most inconsequential successes.

Adapted from Hess et al., 1968, p. 309.

D. Rating Scale for Mother's Criticism

Rate the mother's tendency to criticize or to be critical of the child's actions. Is she critical of the child in word or in tone for every error or inadequate performance, or does she simply help the child to correct his errors or perform without criticizing him? Rate independently of the mother's tendency to praise the child.

1. Mother never criticizes the child or is critical in words or tone beyond the feedback level throughout the tasks.

2.

3. Mother criticizes infrequently or is a little critical in words or tone. She expresses disapproval of the child's performance beyond the feedback level only once or twice.

4.

5. Mother is somewhat critical in words or tone. She criticizes the child occasionally for poor performance, but reacts to most errors with simple feedback.

6.

7. Mother is fairly critical, in frequency and/or intensity, expressing disapproval of the child for poor performance.

8.

9. Mother is frequently and/or intensely critical of the child in word or in tone, punishing even the smallest errors or lacks in performance.

Adapted from Hess et al., 1968, p. 310.

E. Rating Scale for Mother's Rewarding of Child's Independence

Rate the extent to which the mother shows approval or interest in response to the child's independence behavior. This includes the mother's compliance with the child's requests to do independent acts. Child's independence behavior includes: making choices and decisions; stating plans, ideas, and interests; self-help or taking initiative during the task (e.g., taking the lead in the phone conversations); evaluating own or mother's behavior; and doing the tasks or other activities alone (e.g., exploring the room while mother is filling out the form).

1. No interest or compliance in response to child's independence behavior.

2.

3. A little interest or compliance. Low in frequency, weak in intensity.

4.

5. Some interest or compliance. Moderate frequency and intensity.

6.

7. Frequent and/or fairly strong approval, interest, or compliance.

8.

9. Constant and/or strong approval, interest, or compliance in response to child's independence behavior.

Adapted from Sears, Mother Tape Scale 3.

F. Rating Scale for Mother's Restriction of Child's Independence

Rate the extent to which the mother discourages the child's independence (child's self-help, making choices and decisions, taking initiative, evaluating own behavior, etc.) by giving unsolicited direction, help, and guidance to regulate child's behavior. This scale does not consider the mother's direction and help which are in response to child's solicitations, i.e., child's requests and behavioral solicitations (helplessness, difficulties, passivity, fatigue, etc.).

1. Gives no unsolicited help. Laissez-faire or permissive regarding child's independence.

2.

3. Gives unsolicited help only rarely and with weak intensity.

4.

5. Gives unsolicited help and guidance with moderate frequency. Help tends to be moderate in intensity, e.g., encouraging requests, reasoning, suggestions, hints, and/or information, etc., rather than strong directive comments or physical help such as doing the puzzles.

6.

7. Gives considerable unsolicited direction. Help is frequent and/or fairly intense.

8.

9. Discourages child's independence and encourages dependency by giving frequent unsolicited direction, help, and guidance, help is strong in intensity, e.g., directive structuring of tasks and of child's behavior when used as guidance, demonstrating techniques, helping to do the puzzle, etc.

Adapted from Sears, Mother Tape Scale 2.

C. Rating Scale for Mother's Rewarding of Child's Dependency

Rate the extent to which the mother rewards the child's instrumental and emotional dependency by giving help, attention, approval, affection (endearing names, hugs, kisses), reassurance, comfort, and consolation in response to child's requests and behavioral solicitations. Child's behavioral solicitations include: helplessness, difficulties, passivity, fatigue, attention bids including negative attention seeking (mischief, direct aggression), restlessness, demonstrativeness (endearing names, hugs, kisses) as a bid for affection, physical contact as a bid for reassurance or comfort, etc. Mother's help includes: taking a dominant role, directive structuring of tasks, decisions, evaluations of child's behavior when used as guidance, giving information or suggestions, demonstrating techniques, helping to do puzzles, etc.

1. No compliance with child's dependency solicitations.

2.

3. Occasional compliance with child's dependency solicitations. Infrequent and mild in intensity.

4.

5. Moderate compliance with child's dependency solitations. Compliance tends to be moderate in intensity, e.g., mild suggestions, passive attentiveness rather than more active responsiveness.

6.

7. Considerable compliance with child's dependency solicitations. Fairly frequent. Intensity between moderate and strong, i.e., does not always respond in proportion to degree of child's solicitations, e.g., gives size or shape hints at times rather than answering questions about where pieces belong in the puzzles, some delayed rather than immediate responses to child's attention bids, smiling rather than kissing in response to child's kiss.

8.

9. Frequent incidence of help, attention, approval, affection, etc., in response to child's requests and behavioral solicitations. Strong intensity, i.e., responds in proportion to degree of child's solicitations.

Adapted from Sears, Mother Tape Scale 5-6.

H. Rating Scale for Mother's Pressure for Child's Achievement

Rate the extent to which the mother pressures the child for performance or achievement in the tasks, e.g., for telephone conversation, for verbalizations in the dog tasks, for performance on the puzzles, etc.

1. No pressure for high performance or achievement.

2.

3. A few attempts to motivate achievement. Weak in intensity.

4.

5. Some attempts to motivate achievement. Moderate intensity. Flexible, i.e., reduces pressure when child unable or unwilling to respond.

6.

7. Considerable attempts to motivate achievement, e.g., encouragement, requests, and/or suggestions, etc. Frequent and somewhat strong in intensity.

8.

9. Much explicit pressure for high performance or achievement in the tasks, e.g., for long phone conversations or for solving the jigsaw puzzle. May set definite achievement goals or serve as a model by showing own interest in achieving at the tasks. May emphasize achievement in other ways besides performance in the tasks, e.g., asking child to express his knowledge about equipment in the room, or may use achievement incentives to curb child's attempts to deviate from task procedures. May use reward of past achievement as pressure for further achievement.

Adapted from Sears, Mother Tape Scale 12.

I. Rating Scale for Mother's Use of Reasoning with Child

Rate the extent to which the mother uses reasoning (explaining or describing positive or negative consequences of actions) to influence child's behavior or in response to child's questions, disobedience, or other behavior. Includes listening to child's views and trying to take them into account when presenting own reasoning. Examples of reasoning: describing a self-injury consequence to discourage defiant behavior, asking logical questions (asking whether a dog lives in a fish bowl).

1. No use of reasoning.

2.

3. A little use of reasoning.

4.

5. Moderate or occasional use of reasoning. No particular emphasis.

6.

7. Considerable use of reasoning. Fairly frequent and emphasized.

8.

9. Constant use of reasoning. High in frequency and strongly emphasized.

Adapted from Sears, Mother Tape Scale 20.

J. Rating Scale for Mother's Encouragement of Child's Verbalizations

Rate the extent to which the mother encourages and responds to the child's statement and questions. This encouragement includes: responding to his verbalizations frequently; making full responses; drawing him out with questions; listening attentively and with interest; showing approval of his communications and ideas.

1. No encouragement of child's verbalizations as evidenced by failure to respond to them and ignoring his questions.

2.

3. A little encouragement of child's verbalizations: infrequent and weak.

4.

5. Moderate encouragement of child's verbalizations: moderate frequency and strength.

6.

7. Considerable encouragement of child's verbalizations: frequent and somewhat strong.

8.

9. Constant and strong encouragement of child's verbalizations.

Original

K. Rating Scale for Mother's Discouragement of Child's Verbalizations

Rate the extent to which the mother discourages the child's verbalizations. Does she constantly discourage his statements and questions, does she do this only occasionally, or does she never do this? Discouragement of the child's verbalizations includes: rejecting or belittling them; criticizing them; correcting him in an abrupt, harsh or sarcastic way; ridiculing them; reacting with boredom; ignoring; interrupting; shushing them; and pressure for simple repetition.

1. No discouragement of child's verbalizations.

2.

3. A little discouragement; may occasionally do this or not very strongly.

4.

5. Some discouragement but not frequent or strong.

6.

7. Considerable discouragement. Frequent and/or fairly strong.

8.

9. Constant discouragement of child's verbalizations. High in frequency and/or strong in intensity.

Original

L. Rating Scale for Child's Independence

Rate the extent to which the child manifests independence behavior, i.e., choices, decisions, plans, ideas and interests (e.g., saying that he wants to play outside later), self-help or initiative during the tasks (e.g., taking the lead in the phone conversations), evaluations of own or mother's behavior, doing the tasks or other activities alone (e.g., exploring the room while the mother is filling out the form), and requests for permission to do independent acts. Child's choices, plans, initiative, etc. are not rated on this scale when this behavior is mischievous, aggressive, regressive ("babyish"), disorderly, or willfully disobedient (i.e., actions or stated thoughts which are contrary to rules of conduct which mother has explicitly stated for child to follow).

1. No independence behavior.

2.

3. A little or a few instances of independence behavior.

4.

5. Some independence behavior. Moderate in intensity, e.g., requesting permission to do an independent act rather than doing it without asking mother for permission.

6.

7. Considerable incidence of independence behavior.

8.

9. High incidence of indepndence behavior.

Adapted from Sears, Child Tape Scale 1.

M. Rating Scale for Child's Dependency

Rate the extent to which the child manifests instrumental and emotional dependency. Includes child's requests and behavioral solicitations for mother's help, attention, approval, affection, reassurance, comfort, and consolation. Child's behavioral solicitations include: helplessness, passivity, fatigue, attention bids including negative attention seeking (e.g., mischief, direct aggression), restlessness, demonstrativeness (endearing names, hugs, kisses) as a bid for affection, physical contact as a bid for reassurance or comfort, etc.

1. No dependency behavior.

2.

3. A few instances of dependency behavior. Weak in intensity.

4.

5. Some dependency behavior. Tends to be moderate in intensity. E.g.: (a) bids for information, suggestions, or evaluations (child asks mother to agree with his placement of a puzzle piece) rather than helpless bids for strong direction or physical assistance; (b) moderate bids for attention, approval, or affection, etc.

6.

7. Considerable dependency behavior. Frequent and somewhat strong in intensity.

8.

9. Much or a high incidence of dependency behavior. Strong intensity. E.g., helpless bids for physical assistance (for help with puzzles, etc.), strong bids for mother to structure the tasks and make decisions, insistent bids for attention or approval, physical contact to elicit affection or reassurance, etc.

Adapted from Sears, Child Tape Scale 2-3.

N. Rating Scale for Child's Verbal Communication

Rate the amount and quality of the child's verbal communications with the mother. Does he communicate actively and fully, does he respond briefly, or usually not at all?

1. Almost never communicates verbally with mother, rarely or never responds to her statements and questions, never initiates statements and questions, responds very briefly if at all.

2.

3. Communicates verbally a little or occasionally, responds occasionally to her statements and questions, rarely initiates statements and questions, responds briefly.

4.

5. Communicates verbally with the mother to a moderate degree. Sometimes responds to her statements and questions, sometimes initiates statements and questions, and responds adequately but not fully.

6.

7. Communicates verbally with the mother considerably. Usually responds to her statements and questions, somewhat frequently initiates statements and questions, responds fairly fully.

8.

9. Communicates verbally with the mother constantly as evidenced by: active participation in responding to her statements and questions, frequent initiation of questions and statements, and responses which are comparatively full.

Original

0. <u>Rating Scale for Mother's Preoccupation with Questionnaire</u>
(Task 6)

Rate the mother's preoccupation with the form and her responsiveness to the child during the time she is filling out the form. Does she become preoccupied with the form to the exclusion of the child, does she sometimes interrupt the task to respond to the child, or does she frequently neglect the form for the child?

0. Not applicable. The child plays independently, making no overtures to mother, ignoring her.

1. Mother shows slight preoccupation with form, constantly interrupts her task to respond to child, not only to respond to child's overtures but to observe and participate in the child's play.

2.

3. Little preoccupation with form, frequently interrupts her task to respond to the child.

4.

5. Somewhat preoccupied with form, sometimes responds and sometimes ignores child, responds briefly but soon returns to form.

6.

7. Fairly preoccupied with form, rarely responds to child, responds absently, not very aware of child.

8.

9. Mother becomes preoccupied with form, ignores the child completely, makes no response to child's questions, chatter, or bids for attention.

Original

P. Rating Scale for Child's Attention Seeking During Mother's Preoccupation (Task 6)

Rate the extent of the child's attention seeking when the mother is preoccupied with the form. Does he bid constantly for attention, does he try to interact with her sometimes, or does he play alone?

1. Child makes no bids for attention, plays alone, ignoring mother.

2.

3. Occasional bids for attention, mild in intensity, playing alone for the most part.

4.

5. Some attention seeking, moderate in intensity, some playing alone.

6.

7. Makes frequent demands on mother, somewhat strong in intensity. May include mild negative attention seeking.

8.

9. Makes constant demands on mother, strong in intensity. Resists playing alone; may include negative attention seeking (mischief, direct aggression).

Original

APPENDIX C

PRESCHOOL EDUCATION PROJECT

Child Information Form

Child's name _____

Child's birthdate _____ Boy or Girl? _____

Where was the child born? _____

In what states and cities has the child lived? _____

List illnesses child has had (with dates) _____

List accidents, operations, and hospitalizations child has had (with dates)

_____

What handicaps does child have? _____

Does the child watch television? ____ How much per day usually? _____

Does anyone read to the child? ____ Who? _____

How much per day or per week usually? _____

What places has the child visited locally such as the park, zoo, beach, and other places of interest to children? _____

Has the child traveled to other cities and states? _____ If so, where? _____

Does the child play often with other children? _____

With older children? _____ With younger children? _____

Is the child happier playing alone or with a group? _____

Is the child shy or friendly? ____ Fearful or aggressive? _____

Does the child have any fears? _____

At what age did the child start walking alone? _____

At what age did the child start talking? _____

What person has spent the most time with this child? _____

What other persons have spent considerable time with this child? List them in the order of the amount of time they have spent with the child.

_____

_____

PRESCHOOL EDUCATION PROJECT

Child and Family Information Form

Child's Name _____ Date _____

Father's name _____ Mother's name _____

Address _____ Telephone _____

Describe any unusual events which have happened in the child's life such as deaths, separation from family, frightening events, or other events which might have disturbed the child.

_____

_____

What person usually supervises the child? _____

What person usually disciplines this child? _____

What method of discipline is used? _____

Does the child dress himself? _____

Is he toilet trained: Urination _____ Bowels _____

Does child have any allergies? _____

Do you have any problems with the child? _____

What are his best qualities? _____

Are both parents in the home? _____

Any other adults in the home? _____

Brothers and sisters in the home? _____

Any other children in the home? _____

Parents married, separated, divorced? _____

Mother's education _____ Occupation _____

How long has mother lived in this area? _____

Where has mother lived most of her life? _____

Father's education _____ Occupation _____

How long has father lived in this area? _____

Where has father lived most of his life? _____

Family income _____

Prefer preschool a.m. or p.m.? _____

Any problems in participation? _____

APPENDIX D

Tables of Multifacet Analysis of Generalizability

These tables contain the data from the multifacet analysis of generalizability performed after the ratings for all 53 subjects were computed. A table is devoted to the analysis for each scale, A-N, except for Scales G and M which were abandoned during the course of the study. Scales O and P were not included in the multifacet analysis of generalizability because they were related to Task VI only. Table 13

Multifacet Analysis of Generalizability

Scale A. Mother's Affectionateness

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	256.47900	52	4.93229	0.35428		
R	56.46980	1	56.46980	0.20742		
T	4.10189	4	1.02547	0.00007		
SR	58.23018	52	1.11981	0.15107	2	0.07554
ST	131.89706	208	0.63412	0.13484	5	0.02697
RT	2.99245	4	0.74811	0.00724		
SRT,e	75.80565	208	0.36445	0.36445	10	0.03645

Est $\sigma^2(\delta)$ = 0.13895 Est σ (δ) = 0.37276

Est $\sigma^2(M)$ = 0.35428 Est σ (M) = 0.59521

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 0.49323

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.35428}{0.49323} = 0.71829$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 4.71509

Table 14

Multifacet Analysis of Generalizability

Scale B. Mother's Acceptance

Source of Variance	Sum of Squares	d.f.	Mean Squares	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	277.80688	52	5.34244	0.38565		
R	6.23821	1	6.23821	0.01269		
T	4.20943	4	1.05236	-0.01602*		
SR	53.08647	52	1.02089	0.11797	2	0.05899
ST	186.38455	208	0.89608	0.23253	5	0.04651
RT	9.14151	4	2.28538	0.03499		
SRT,e	89.65274	208	0.43102	0.43102	10	0.04310

Est $\sigma^2(\delta)$ = 0.14859 Est σ (δ) = 0.38548

Est $\sigma^2(M)$ = 0.38565 Est σ (M) = 0.62101

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 0.53424

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.38565}{0.53424} = 0.72186$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 6.76321

*Treated as zero

Table 15

Multifacet Analysis of Generalizability

Scale C. Mother's Use of Praise

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	536.04150	52	10.30849	0.70282		
R	2.44528	1	2.44528	-0.00080*		
T	448.41870	4	112.10468	1.02647		
SR	86.91719	52	1.67148	0.19350	2	0.09675
ST	481.07251	208	2.31285	0.80442	5	0.16088
RT	6.75873	4	1.68968	0.01860		
SRT,e	146.43274	208	0.70400	0.70400	10	0.07040

Est $\sigma^2(\delta)$ = 0.32803 Est σ (δ) = 0.57274

Est $\sigma^2(M)$ = 0.70282 Est σ (M) = 0.83834

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 1.03085

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.70282}{1.03085} = 0.68178$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 2.78491

*Treated as zero

Table 16

Multifacet Analysis of Generalizability

Scale D. Mother's Use of Criticism

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq within S	Contrib. to $\sigma^2(\delta)$
S	454.07544	52	8.73222	0.53268		
R	5.50189	1	5.50189	0.00758		
T	12.06792	4	3.01698	-0.00673*		
SR	102.89810	52	1.97881	0.23770	2	0.11885
ST	461.12646	208	2.21695	0.71333	5	0.14267
RT	9.21509	4	2.30377	0.02856		
SRT, e	164.38110	208	0.79029	0.79029	10	0.07903

Est $\sigma^2(\delta)$ = 0.34055 Est σ (δ) = 0.58356

Est $\sigma^2(M)$ = 0.53268 Est σ (M) = 0.72985

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 0.87322

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.53268}{0.87322} = 0.61001$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 2.92830

*Treated as zero

Table 17

Multifacet Analysis of Generalizability

Scale E. Mother's Rewarding of Child's Independence

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	626.09375	52	12.04026	0.93461		
R	11.50387	1	11.50387	0.02788		
T	44.13637	4	11.03409	0.07051		
SR	105.56128	52	2.03002	0.24419	2	0.12210
ST	306.42773	208	1.47321	0.33208	5	0.06642
RT	11.58327	4	2.89582	0.03937		
SRT, e	168.28217	208	0.80905	0.80905	10	0.08090

Est $\sigma^2(\delta)$ = 0.26942 Est $\sigma(\delta)$ = 0.51906

Est $\sigma^2(R)$ = 0.93461 Est $\sigma(R)$ = 0.96675

Est E $\sigma^2(I)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(R)$ = 1.20403

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(R)}{\text{Est E } \sigma^2(I)} = \frac{0.93461}{1.20403} = 0.77624$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 4.83946

Table 18

Multifacet Analysis of Generalizability

Scale F. Mother's Restriction of Child's Independence

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	369.59326	52	7.10756	0.45296		
R	18.91968	1	18.91968	0.05827		
T	35.97006	4	8.99252	0.04589		
SR	69.30191	52	1.33273	0.11926	2	0.05963
ST	412.18335	208	1.98165	0.62260	5	0.12452
RT	11.53014	4	2.88253	0.04049		
SRT,e	153.18008	208	0.73644	0.73644	10	0.07364

Est $\sigma^2(\delta)$ = 0.25779 Est σ (δ) = 0.50773

Est $\sigma^2(M)$ = 0.45296 Est σ (M) = 0.67302

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 0.71076

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.45296}{0.71076} = 0.63730$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 5.26389

Table 19

Multifacet Analysis of Generalizability

Scale H. Mother's Pressure for Child's Achievement

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	185.79768	52	3.57303	0.12976		
R	7.37028	1	7.37028	0.02055		
T	45.04904	4	11.26226	0.09112		
SR	83.25433	52	1.60104	0.19927	2	0.09964
ST	266.04370	208	1.27906	0.33718	5	0.06744
RT	3.71698	4	0.92925	0.00612		
SRT,e	125.77525	208	0.60469	0.60469	10	0.06047

Est $\sigma^2(\delta)$ = 0.22754 Est σ (δ) = 0.47701

Est $\sigma^2(M)$ = 0.12976 Est σ (M) = 0.36022

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 0.35730

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.12976}{0.35720} = 0.36317$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 5.84811

Table 20

Multifacet Analysis of Generalizability

Scale I. Mother's Use of Reasoning with Child

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	565.12451	52	10.86778	0.71894		
R	3.48868	1	3.48868	0.00294		
T	117.42641	4	29.35660	0.24376		
SR	92.61131	52	1.78099	0.21782	2	0.10891
ST	538.56763	208	2.58927	0.94869	5	0.18974
RT	6.48302	4	1.62075	0.01753		
SRT, e	143.91319	208	0.69189	0.69189	10	0.06919

Est $\sigma^2(\delta)$ = 0.36784 Est σ (δ) = 0.60649

Est $\sigma^2(M)$ = 0.71894 Est σ (M) = 0.84790

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 1.08678

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.71894}{1.08678} = 0.66154$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 2.94906

Table 21

Multifacet Analysis of Generalizability

Scale J. Mother's Encouragement of Child's Verbalizations

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	258.54175	52	4.97196	0.35619		
R	1.66993	1	1.66993	-0.01062*		
T	117.16037	4	29.29008	0.23269		
SR	53.86089	52	1.03579	0.04695	2	0.02348
ST	244.45573	208	1.17527	0.18712	5	0.03742
RT	17.00282	4	4.25071	0.06509		
SRT,e	166.61269	208	0.80102	0.80102	10	0.08010

Est $\sigma^2(\delta)$ = 0.14100 Est σ (δ) = 0.37550

Est $\sigma^2(M)$ = 0.35619 Est σ (M) = 0.59682

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 0.49720

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.35619}{0.49720} = 0.71640$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 5.47877

*Treated as zero

Table 22

Multifacet Analysis of Generalizability

Scale K. Mother's Discouragement of Child's Verbalizations

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	361.19971	52	6.94615	0.41570		
R	26.60672	1	26.60672	0.09768		
T	14.29953	4	3.57488	0.01499		
SR	57.89917	52	1.11345	0.08228	2	0.04114
ST	494.56348	208	2.37771	0.83783	5	0.16757
RT	1.24292	4	0.31073	-0.00738		
SRT,e	146.02496	208	0.70204	0.70204	10	0.07020

Est $\sigma^2(\delta)$ = 0.27891 Est σ (δ) = 0.52812

Est $\sigma^2(M)$ = 0.41570 Est σ (M) = 0.64475

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 0.69461

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.41570}{0.69461} = 0.59847$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 2.40330

*Treated as zero

Table 23

Multifacet Analysis of Generalizability

Scale L. Child's Independence

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	599.22852	52	11.52362	0.64981		
R	50.86417	1	50.86417	0.13300		
T	84.92023	5	16.98404	0.07798		
SR	115.10860	52	2.21363	0.22716	2	0.11358
ST	614.35522	260	2.36290	0.75613	6	0.12602
RT	36.03188	5	7.20638	0.11992		
SRT,e	221.16592	260	0.85064	0.85064	12	0.07089

Est $\sigma^2(\delta)$ = 0.31049 Est σ (δ) = 0.55722

Est $\sigma^2(M)$ = 0.64981 Est σ (M) = 0.80611

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 0.96030

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{0.64981}{0.96030} = 0.67667$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 6

Grand Mean: 4.67840

Table 24

Multifacet Analysis of Generalizability

Scale N. Child's Initiative in Verbal Communication

Source of Variance	Sum of Squares	d.f.	Mean Square	Component of Variance	Freq. within S	Contrib. to $\sigma^2(\delta)$
S	655.25659	52	12.60109	1.05349		
R	40.77170	1	40.77170	0.14707		
T	19.62546	4	4.90636	0.02312		
SR	51.07828	52	0.98227	0.08548	2	0.04274
ST	340.86792	208	1.63879	0.54197	5	0.10839
RT	5.48774	4	1.37193	0.01542		
SRT,e	115.40869	208	0.55485	0.55485	10	0.05548

Est $\sigma^2(\delta)$ = 0.20662 Est σ (δ) = 0.45456

Est $\sigma^2(M)$ = 1.05349 Est σ (M) = 1.02639

Est E $\sigma^2(X)$ = Est $\sigma^2(\delta)$ + Est $\sigma^2(M)$ = 1.26011

$$\text{Est E } \rho^2 = \frac{\text{Est } \sigma^2(M)}{\text{Est E } \sigma^2(X)} = \frac{1.05349}{1.26011} = 0.83603$$

S - Subjects n = 53
R - Raters n = 2
T - Tasks n = 5

Grand Mean: 4.91321

APPENDIX E

Samples of Mother-Child Interaction Transcripts

Sample transcripts of the mother-child interaction are included here to show the types of mother-child interaction observed. The investigator generally chose samples from among children who scored either high or low on the language measures to show the differences in the interaction related to the extremes of language performance. The tasks, subjects, and language scores are indicated below.

Task I. Telephone. Transcripts are presented for Subject 5, whose PPVT IQ was low (63) and whose MLU was also low (1.2), and for Subject 26, whose PPVT IQ was high (104) and whose MLU (2.0) was near the mean.

Task II. Puzzle. The transcript is presented for Subject 7, whose PPVT IQ was high (106) and whose MLU (2.0) was near the mean.

Task III. Dog. The transcript is presented for Subject 58, whose PPVT IQ was low (66) and whose MLU (2.2) was near the mean.

Task IV. Matching Homes. Transcripts are presented for Subject 4, whose PPVT IQ was high (104) and whose MLU (3.0) was above the mean, and for Subject 21, whose PPVT IQ was low (77) and whose MLU (1.4) was also low.

Task V. Animal Cards. Transcripts are presented for Subject 31, whose PPVT IQ was low (66) and whose MLU (1.1) was also low, and for Subject 42, whose PPVT IQ was high (122) and whose MLU (3.1) was somewhat high.

Task VI. Form - Car. Transcripts are presented for Subject 9, whose PPVT IQ was somewhat high (98) and whose MLU (3.9) was high, and for Subject 16, whose PPVT IQ was low (55) and whose MLU (1.5) was also low.

MOTHER-CHILD INTERACTION

Subject #5, 8-24-66

Task I. Telephone

Mother-Child Transcription		Observer Transcription
	1x	
O These are two telephones, just pretend telephones, and I want you and your Mommy to talk together, OK? Oh, I forgot to tell you--this is the microphone. And it goes in there to the tape recorder, and then I'll be behind this glass watching. (O exits)		
	2x	(O returns)
M OK, get your phone. C'mon. . . . . Get the phone, (C's name).		M has her receiver to her ear.
	3x	
M Talk, say hello, come on, say hello, (C's name).		C picks up the receiver, puts it to his ear. He's smiling.
C (Very low) Hello.		M looks down at him.
M Talk right in there. Say hello.		
C Hello.		C looks up at M and grins, but
M (Urgently) Talk!		M does not smile.
C Hello.		
	4x	
M Hello. . . . . Say how ya doin'?		C holds the receiver across his face.
C How ya doin'? (low)		
M Fine		
C (Low) Fine.		
M Say what are you doing today?		M tries to get C to talk.
C You doin' today?		C is looking all around.
	5x	
M Come on, talk! Hm? Talk. . . . . You're not goin' talk?		C rubs his receiver back and forth across his face and mouth. C looks up at M.
	6x	
M OK, we'll go home. Talk! OK, talk.		
C (Low) Huh uh (no).		C just grins at M.
M (C's name), get the phone and talk. OK, I'll tell Bill.		Now he looks more sober.
	7x	
M C'mon. . . . C'mon, real loud.		M tries to get C to talk but
C Hello.		he just looks up at her.
M (Enthusiastically) That's good! Say how is Bill?		C smiles. M is still fairly serious faced.
C How is Bill?		

8x

M Oh, he's fine. Say--how is Tom?
C How's Tom?
M He's fine. C'mon, ask about all the rest.
C How's you?
M Fine. How you, (C's name)?
C Huh?

C repeats phrases after M.

C looks down at the telephone.

9x

M Say--how is . . . Daddy?
C How's Daddy?
M He's fine. Say--how is Dorothy?
C How's Dorothy is?
M She's fine.

C grins most of the time, a rather embarrassed grin. Sometimes he becomes sober. M is serious most of the time. C grins but seems unhappy.

10x

(Silence)

C rubs the receiver back and forth across his face. M looks around the room, now upward. C looks down, not doing anything.

11x

. . . . . .
M C'mon.
C Hello.
M Talk out real loud.
C Hello. . . .

C tries to get the receiver in his teeth but it's too big. Now he rubs it back and forth again.

12x

M Say--what's Dorothy doin'?
C What Dorothy doin'?
M She's fine. She's playin' today. Say that.
C She's playin' today. . . .

C repeats after M.

13x

M What's Joe doin'?
C What's Joe doin'?
M He's playing today. Say it.
C He's playing--
M What's Mary doin'?

C looks down at the receiver.

(O exits)

14x

C Mary--
M He's playing today.
(O enters)

(End of Task)

MOTHER-CHILD INTERACTION

Subject #26, 8-22-66

Task I. Telephone

Mother-Child Transcription		Observer Transcription
	1x	
O I'm gonna give you and your mommy these telephones, and I want you and your mommy to talk to each other on the telephone. OK?		
	2x	
(O exits)		
M Um hm.		
C (Ring, ring, ring)		
M Hello?		(O returns)
	3x	
C Hello.		When given the phone, C picked up the receiver immediately. They're smiling as they talk.
M Who am I speaking to?		
C Who's this I'm speakin' to?		
M Who am I speaking to? What your name?		
C What's my name? . . .		C's grinning at M. M looks at her and grins.
M You're playing games.		
	4x	
C You're playing games.		C looks off into space.
M (C's name).		M looks at C.
C Hm.		They grin and laugh at each other.
M Is that your name?		
C Uh hm.		
M What are you doing?		M has a big, broad smile.
C Playin'.		
M Playing? What are you playing?		Now M is sober.
C Playin'. With my kitties.		
	5x	
M You're playin' with your kitties?		
C Uh hm.		
M What are their names?		
C Brian.		
M (Surprised tone) You have more than one cat?		C nods and grins. M has a slight smile.
C Uh huh.		
M What's the other one's name?		
C . . . Kitty.		
	6x	
M Kitty.		
C Uh huh.		
M One's Brian and one's Kitty. What color are they?		
C Red.		
M The cats are red?		C has her hand on the telephone but she does not dial.
C Yeah.		

B Have you ever seen a red cat?
C Yeah.
B Where?

7a

C An' a black cat.
B You saw a black cat and a red cat, too?
C Yes.
B Was he real?
C Uh—was "is. . . .
   Now—a black cat run up on the—on our roof. (re)
   (pronounced as B speaks)
B Whose roof?

B and C are smiling most of the time as they talk.

C looks up at the light. She takes the receiver from her ear. C grins at B.

C looks serious now for the first time. She's usually been smiling.

8a

C Sure
B When?
C Because.
B When did he go on the roof?
C Because. "Tryin" to switch "is.
B You were tryin' to switch "is?
C Yeah.

C looks over at B and grins. B's looking back at C.

C grins again.

9a

B Who was tryin' to switch "is?
C A cat.
B A—another cat was tryin' to switch the cat?
C Yeah. . . .
B Did you get help?
C Yeah. . . .

C grins at B. B looks back at C soberly.

C sometimes looks into space, sometimes at B. Now C and B look at each other.

10a

C Help. He like this. . . .
B What are you doing now?
C Fine. . . .
B What are you doing?
C Fine.
B I didn't say (laughs) "how are you doing." What?

C reaches over, takes hold of B's telephone cord, and runs her hand along it as if she likes the feel. C looks at her receiver. She grins.

11a

C Fine.
B (laughs) (B's name)! (laughs)
C Good-bye.
B Good-bye. (Sounds of receivers) Now I'm gonna call you, OK?
C OK.
B (Ring, ring)

B laughs at C.

Both hang up their receivers. C grins wimp. B smiles.

B dials.

12a

B Answer your phone.
C (Ring) Hello.
B (C's name)?
C Hi!?
B How are you?
C Fine.

B picks up her receiver. C dials, grins, and picks up her receiver.

13

13x

M Do you have on a dress today?
C Uh huh. — C grins.
M What color is it?
C Red. . . .
M It--what color is your blouse?
C Uh--yellow.
M Oh! It's pretty, huh?

14x

M What color're your shoes?
C Black.
M What do they have on them?
C (Mumbles) I 'on't know. — C looks down but does not see her shoes. C puts her shoe up on the chair.
M You wanna take a look? . . . Look at your shoes. (Tapping sound)

15x

M What's on them? . . .
C They got--oo, wait a minute. Wipin'. Good-bye. — C starts to put the receiver down several times but then she holds it back up.
M Oh, you don't wanna talk to me? . . . — They laugh at each other.
C Hello, Mmmma. — M laughs out loud.
M (Laughs) Hello, sweetheart.

16x

C How--what you doin'? — C's grinning.
M Oh. I was thinkin' of what I should fix for dinner. . . . What would you like for dinner?
C I like a...sammich. — C looks into the receiver.
M A sandwich?

17x

C Yeah.
M For dinner? — C puts her hand on the dial.
C Yeah.
M What kinda sandwich?
C (Rings) Oh, bread. — C dials. M watches her.
M One with bread?
C Yeah.
M (Laughs) . . . What kind--you wanta meat or a jam sandwich?
C Jam sandwich.
M Wanna jam sandwich?

18x

C Um.
M What kinda jam? Want peach or strawberry? — C takes the receiver away from her ear, then puts it back.
C 'Rawberry.
M What color strawberry? Is it red or yellow? — M looks mostly at C throughout the conversation, smiling sometimes, looking sober sometimes.
C Red--yellow?
M Strawberries are red-yellow?

19x

C No, yellow. — C starts to put the receiver down, puts it to her ear again.
M What's yellow?

C Yel--it brown like this table.
M (Laughs) No, it's not.
(Laughs)
C Goo'-bye.
M Good-bye.
(Sounds of receivers)

C puts her hand on the table, wiping it around. M laughs.

(O exits)

20x

C (Receiver sounds) You wan' us talk again?
M You wanna talk again?
C (Ring, ring)
(O enters)
M (Laughs) Oh, brother! Is she a fake? (Laughs)

(End of Task)

MOTHER-CHILD INTERACTION

Subject #7, 9-30-66

Task II. Puzzle

Mother-Child Transcription	Observer Transcription
12x	
O OK, now this is a jigsaw puzzle, and I'm going to take some of the pieces out of it, and I want you to put them back in, back in the spaces where they go. Your mommy can help you. (O exits)	
13x	
M Now you can put them back the way they go, all right?	
C (??).	
M Uh huh, you have to put that where the dog to. They have to be wrong like that.	
14x	
M No, you . . . see won't fit there.	(O returns)
C Where it fit, right here?	C is trying to work the clock piece into the ball space. M puts her finger on it but C keeps maneuvering it. C puts it to a space, works it in. C picks up another one.
M Yeah, that's right. That's good. Try another one.	
C What is that?	
15x	
M Try and see, try and see.	C looks around the board to see where it fits.
C What is that?	
M Try and see. No, it won't fit there, will it? Oh, that's a good (C's name). Try another one.	
C Try over here?	C puts it into the next space and works it down in.
M Try.	
16x	
C Here's one, too.	C picks up another piece, then starts to take the clock out. C picks up the bike, tries it in the bike space, gives up, tries the car space. M points back to the bike space.
M That's a clock, yeah. Now, try that one and see.	
C (??) Nope.	
M Turn it around, try it the other way. Try it here the other way.	
17x	
M You see, the bicycle has to go straight up and down like that. Good! Try. . . .	C works the bike piece in.
C Car, car.	C picks up the car. M reaches as if to take it but puts her hand back down on the table.
M That's a car. Oh.	
C Where do it go at?	
M Try it. Try it and see.	
C Oh, it fit.	

18x

M Yeah, try and see where it goes.
C Goes right there, like that?
M Uh huh, lift it up and put it on--no, turn it back the other way.

Sometimes M smiles during this task and sometimes C smiles. Sometimes they're sober. Now C puts in the car. He turns it various ways.

19x

M That's right, try another one. Now, what is that, oh, that's right, bring it down some--now, that's right.

Now C has worked it down in. C picks up the tree, tries it in the duck space. He tries it in the right space now.

20x

C Where this go?
M That's--what is that?
C Something.
M Something? What is that? What do you call it? It has a name. That's good. Now you have some more to do, ohhh, good.

C picks up the next one.

C works it down into place by himself. He picks up the ball and puts it into the space where it goes.

21x

M . . . . Won't fit there, I don't think, no.
C That's a squirrel.
M That's a chicken.
C Look at dat chicken.
M Uh huh, where are you going to put it?
C Right over-- . . . . .

C picks up the chicken, tries it in the dog space. M just watches him.

C's looking at the piece.

22x

M Right where? That's right, you see. . . . . Good. Now, you have how many more to go?
C This.

C takes it to the proper space and tries to put it in. He sees he has it turned wrong and turns it the right way by himself. He gets it in.

23x

M This one? . . . . . What is that? Huh? What is it? Good.
C This the last one here.
M Oh, that's the last one. All right.

C smiles slightly. M looks serious but smiles sometimes. M just sits with her hands on the table, watching C. C just worked the dog piece in.

24x

M Where does that one go? . . . There, good for you! Now, what is this?
C Something.
M Look at it and see what it is.
C A __(??)__, a dog.

C picks up the last piece--the bear. He looks around the board to see where it goes. He sees the space, works it in.

(O exits)

25x

M Oh, that's a dog, and what is this?
(O enters)

(End of Task)

MOTHER-CHILD INTERACTION

Subject #58, 9-24-66

Task III. Dog

Mother-Child Transcription	Observer Transcription
	52x
O Now. This is a little toy dog.	
	53x
O And I want your mommy to get you to tell her all about it. (O exits)	
M . . . (Sighs) Mm.	(O returns)
	54x
M What's the doggie's name?	C has the dog. M reaches over and takes it too, then draws her hand back to her head. C has the dog in both hands.
C (Low) I don't know.	
M What color is he?	
C (Low) Green?	
M (Low) Green?	
C (Low) I don't know.	
M What color is that right there?	M points to the dog's ear.
C (Low) Don't know.	
	55x
M What--black.	
C Black.	
M All right. What color is that?	M points to the dog's head.
C (Low) Gray.	
M It's light brown, isn't it? What color is this tie 'round his neck? What is that?	M is leaning over C. She is fairly close to C but is not touching her.
	56x
C (Low) Red.	M has her arm on the back of C's chair. She's leaning her head down over C as she points to parts of the dog. C holds the dog with both hands and manipulates it a little with her fingers. M points to the dog's ears.
M Out loud.	
C (Low) Red.	
M And this is dark brown, isn't it? Hm? And he's got on--what kinda tail?	
C (Low) Dark brown.	
M And what kinda ears?	
	57x
C (Low) Uh--red.	
M Black.	
C Black.	
M Color eyes do he have?	
C (Low) Ohh.	M moves the dog so that it is facing C.
M What kinda eyes does he have?	
	58x
C I don't know.	
M What kind of tongue?	
C I don't know.	
M See his tongue right there? What color is it?	M points to the dog's tongue.

M What color is it?
C (Low) Green.

M Red? Red?
. . . .
. . . .

(Silence)

M You like that doggie?
C Yes.
. . . .
(O enters)

59x

C nods. C nods again. M and C both concentrate on the dog. M leans back. C looks at M, then back down at the dog.

60x

M looks as if she's run out of questions. She looks up at the microphone, back down at the table. Both are silent. C looks around the room. Both act as if they think the task is completed.

61x

(O exits)

(End of Task)

MOTHER-CHILD INTERACTION

Subject #4, 8-24-66

Task IV. Matching Homes

Mother-Child Transcription	Observer Transcription
	60x
O Here's another puzzle. This one--some are animals and some are homes, and we need to match the animal up with its home--	
	61x
O --and your Mommy can help you. (O exits)	
M This is fun. You know what to do?	
C No.	
M You put the animal in the house that he lives in.	(O returns)
C Where diss one?	M has helped C spread the cards out a little.
M Hm?	
	62x
C Diss one?	C picks up a card.
M No, not that one, let's see. Let's start with the cow, OK?	M is smoothing the cards out to see them better.
C OK.	
M Where does the cow live?	
C Right here.	C points to the barn.
M It lives right there? That's a barn. That's right!	
C This a barn (repeats M's emphasis).	
	63x
M That's right. He lives in a barn. You wanna put that together?	C takes the two pieces and tries to work them together.
C Um hm, this?	
M Um hum.	
C This and this?	C's having a hard time because
M Yeah. Put it together.	he's trying to force it side-
C OK. This fit together.	ways. He puts it together.
M There we got that fitted together.	M reaches over, presses it down.
	64x
M The cow lives in a barn. Where does a boy live? See?	M pushes the cow and barn over to the side.
C He live right here.	C points to the house immedi-
M That's right. He lives in a house.	ately.
C I'll put it in.	C fits the two pieces together.
M Oh, isn't that fun?	
	65x
M You got two right. The cow lives in the barn and the boys lives in the house. Let's see if we can find out where this fish lives.	C puts this set over to the side. M helps him push them over. M picks up the fish.
C What fish?	

M	See, this is a fish.	
C	This is fish?	C has his hand on the dog piece.
	66x	
M	No, that's a dog. Where does a fish live?	C looks over at the fish. Now he looks around at the other pieces.
C	Uhh. Where fish live?	
M	Find where the fish lives. See, all of these. . . . That's an elephant. . . . Oh, no. . . .	M spreads them all out. C puts his hand on the elephant piece.
	67x	
M	Where does a fish live? Where do you find fish in?	C puts his hand on the nest piece and picks it up. M has a frown on her face. Her frowns seem to be for emphasis and dramatic effect, or for concentration. C tries the fish with the kennel.
C	(??) here?	
M	No, that's a doggie, lives in the kennel. . . . . It doesn't fit, does it?	
C	(??) .	
	68x	
M	Find where the fish lives.	C looks around the table. He poises his hand over the fish bowl, but doesn't pick it up.
C	OK.	
M	Look at all the pretty pictures and find out one where the fish lives. Come on (pleading tone).	
C	Fishie go (??). . . . . Wait. Where . . . house?	
M	(Interrupts) Look at 'em all again.	
	69x	
C	(Makes sounds) Think I find 'em. Here Mommy is.	Finally C scoots all the pieces together in a pile. He picks up the fish bowl.
M	That's right!	
C	(Laughs)	C has the two pieces now and
M	Fish lives in a bowl, huh?	he tries to fit them together.
	70x	
C	Fish live in a bold (emphatically).	C gets the two pieces together.
M	Bowl. (Murmurs low comment)	M straightens up the pieces C
C	Fishie. Look at this.	has already put together.
	71x	
C	Where?	M puts the third completed set over beside the others.
M	(Coughs)	
C	Who live here?	C picks up the hen and gets
M	(Huskily) Chicken lives in a—	the kennel which is close to
C	Chicken live right here.	it. He tries to fit them
M	No, chicken doesn't live there.	together.
C	Where he live? Right here.	
	72x	
C	Right here, Momma (repeats with more emphasis).	C picks up another one.
M	Huh uh (no).	
C	Yes, they do.	
	73x	
C	Uuhh. (Mumbles something)	C puts it down and scoots all
M	No, chicken doesn't live there. Look again.	the pieces together in a pile.

C He live here.
M Huh uh (no).
C Where he does?
M Lives in a coop. Look around.

M starts to spread out the pieces so C can see them.

74x

M See, you find--see some more chickens. Look at the pictures, honey, ... (C's name).
C Huh?
M Look at the pictures.
C Um. __(??)__ put this?
M No, that's an elephant. Look where the chicken is. Do you see any more chickens? No, no, no.
C Here's chicken.

C picks up the wrong one. He tries to fit it with the chicken. He turns them over upside down and tries to force them together.

M reaches over and takes them apart.
C picks up the bird.

75x

M Thas'sa bird. . . . D'you see any more chickens?
C Where he house? Here it is!
M (Interrupts him) Look, see where is the baby chickens, hon?
C Here it is!
M No! That's for the bird. See the baby chickens.
C Mommy, put the bird all in?

C's picking up the pieces.

C picks up the nest.

C looks for the bird.

76x

M Look, honey, let me show you somethin'. See the baby chickens? Look on the pictures and see the baby chickens. Over here.
C Here the baby chicken.
M No, honey, look over here. See the baby chickens?
C (Sigh) Where the baby chickens?
M Hmmm?
C (Irritated tone) Go to it.

M puts the nest piece down. She tries to get C to look at the other pieces but he won't.

C looks over at the pieces he has already put together.

77x

M Look. Oh, here we go. . . . See, I say, look at the baby chickens, OK?
C Yeah.
M Yeah. Now you did that. Now let's find something else. Where does the bird live?

M shoves it over slightly toward C. C sees it, takes it, puts it together.
C is either teasing M or he doesn't want to do what she says.

78x

C Right here (draws it out).
M What is that?
C A cow.
M No, it's an elephant. Now that's a elephant. Now find out where the bird lives.
C OK (slowly and emphatically). He live right here.

C picks up the elephant, and tries to put it with the bird.

M takes the elephant away.

79x

M That's right, in a nest.
C He live in a nest. (??)
Where we put this?
M Let's put that right underneath there.

C pulls the nest toward him. He picks it up and tries to fit two together. He gets them together easily. M helps put them with the others.

80x

M Put it this way. All right, now look. Where, where does the dog live? No.
C Right here?
M That's a--what is this?
C Elephant.
M An elephant.
M An elephant. Now where does the elephant--

The set is upside down. M turns it around.
C picks up the kennel but puts it with the jungle.
C is trying to fit two together.

81x

C Elephant go here.
M That's right. Now what do we have left?
C Diss.
M What is that? . . . . .

C picks up the jungle and the elephant. He fits them together. He has them upside down. M turns them around. M leaves them in place.

82x

M What is that?
C You can't help me, Mommy.
M I can't help you?
C No.
M All right, I won't help you. What is that?
C I bet I could do right here.
M I bet you could, too.

C has the last two pieces left, the dog and kennel. He fits them together, upside down.

C gets them together upside down, puts them with the rest.

83x

C Want me do it again? Want me do it again?
M Want you to do it again?
C Yeah.
M Oh, I don't think so. I think they want you to do something else very shortly. . . . . .
(O enters)

Now C looks at all the sets which he has put together.

(O exits)

(End of Task)

MOTHER-CHILD INTERACTION

Subject #21, 8-22-66

Task IV. Matching Homes

Mother-Child Transcription	Observer Transcription
	57x
O She's probably a little too young to get these together, but you can help her. These will match up. There's an animal and it has a home, and your mommy can help you put 'em together.	
M Oh, it's a puzzle.	
C Huh?	
M I don't know. The children are better at these sometime. (Laughs)	
O (Laughs) Yeah.	
	58x
M (Still laughing) It burns.	
C (Coughs as M speaks) (O exits)	
M Uh huh. . . . Come on. . . . Let's see if we can get it together. I doubt if we can, (C's name). I don't think I can.	(O returns) M is spreading out the pieces and lining them up.
C (Sneezes)	
	59x
M Probably not gonna work.	
C (As M speaks) What's diss, Mommy?	C picks up a piece.
M Come on, let's work the puzzle. You think we can?	M ignores C's question. M is trying to work pieces together.
C Yeah.	C picks up a piece and hands it to M.
M That doesn't go there. I know I'm just about not goin' to get it fixed. . . . . Huh uh (no).	M tries to fit the pieces together.
	60x
M Come on now, you help me. You have to help me.	C picks up another piece.
C There one.	C just spreads the pieces around while M tries to fit them together by herself.
M Huh?	
C There one.	
M Uh huh. Lookit there. Here's the doggy going into his dog house.	M puts the set together.
C (Loudly) What diss?	
	61x
M Huh?	
C What diss?	C picks up the chicken.
M This is a chicken.	M tries to find the piece that goes with the chicken.
C Chicken.	
M Yeah, that's a chicken. . . .	

♦ Ah' look. There's a cow gone' to a barn. How the fish would go else—there.	♦ gets the cow and barn together.
42b	
♦ Come on. Let's turn it around. ○ ○ ○ How this is the fish bowl. And here's the fish. ○ ○ ○ This is the fish bowl. ○ ○ ○ And here's the fish. Where would you put this?	I knows it needs to get the idea, and tries her alternative to other pieces. ♦ tells to get I to do it, but I doesn't respond.
43a	
I Right—right here? ♦ (Interrupts) You put—you put a fish where? I Right here? ♦ No, if this is a fish bowl, where would you put the fish? I Over here. ♦ Yeah, we'll put this here.	♦ puts the fish up against the fish bowl. I looks at another card. ♦ has the pieces almost together. I does not get the point. ♦ puts them together by herself finally.
44a	
I See this? (as ♦ speaks below) ♦ And the children goes to sent. I See this, Penny? ♦ Look, this is the children's sent. Where would you put it? I Over here. ♦ (Interrupts) No. ○ ○ ○ Wrong here. This is the children.	I picks up another piece. ♦ ignores I. ♦ reaches over and takes the piece I has in her hand.
45a	
♦ This is the baby child, and this is the mother. Where would you put it? This is the baby child, and this is the mother. I (as ♦ speaks) (??) ○ ♦ (Continues) Where would you put them? I That's the woman? ♦ Yeah, and this is the baby. Where would you put—place them? I Mm? Them? ♦ Yeah. I Oh.	♦ has the set practically together. I does not seem to get the idea that they fit together.
46a	
♦ This is the babies—children, and that's the sweep. Would this go here? I (Sweep) ○ ○ ○ ♦ OK. See this is a kid, and a kid has a kid sent.	♦ holds the two up together, but I does not get the point. ♦ goes ahead and puts the set together by herself. ♦ puts the kids and sent pieces together.
47a	
♦ Would that go together? ○ ○ ○ You're not helping me. Come on.	I nods blankly. ♦ puts the set together.

C Now, that's the only thing we have left. Can you fix that? Let me see you put it together. . . . Come on.	K gets the last two pieces. C does not seem to have the idea of this task.
K . . . . . Ugh. Now. . . . You just didn't do very on this. You—	(C exits)
(C enters)	
K (Continues) —better otherwise, but you not doing so good this morning.	

(End of Task)

MOTHER-CHILD INTERACTION

Subject #31, 9-3-66

Task V. Animal Cards

Mother-Child Transcription	Observer Transcription
	69x
C Now. These are some pictures that he won't know about, I don't think, and I want you to tell him about those.	
	70x
M OK. C The names are on the back if you wanta look, but— (C exits) M Ohh, what is this? . . . Uh?	
	71x
M This possum. Say, "possum"? See the little possum and big possum. C (??) (as M speaks). M Little possum. Say it loud. C Little (??). M Say, "little possum"!	(C returns) M is holding the possum card up in front of C. C tries to get the possum card away from M.
	72x
C Little possum. M And big possum. C Big possum. M Let me see what this is. . . . Corker. That a gray cat.	M holds the card back with her hand. C gives up, lets it go. C looks down, then around. M lets go the card. C grabs it. M holds up another, looks on the back.
	73x
M A gray kitty. C Gray cat. M See what this is. This is a sea lion. . . . Some sea lion. Say, "sea lion." C Sea lion. M Yeah.	C grabs the cougar card. M lets it go. M picks up the next card and lays it down in front of C. C's looking at the cougar.
	74x
M Nice here red squirrel. Say, "red squirrel." C Red "quirrel. M Yeah, that very good. Say, say, "a gray wolf." . . . Say, "gray wolf." . . . Say, "gray wolf."	M puts the squirrel card and puts it in front of C. C flips it over. M puts the wolf card and puts it down in front of C. C plays with the cards.
	75x
C In (??). (Blows) M Gray wolf! C Gray woof. M Say, "gray wolf." C Gray woof.	C looks at the wolf. C reaches out, picks up the cards, puts them in his hands and puts them.
	76x

M Gray wolf! Say, "Get away from me, gray wolf." . . . Say, "a black bear."

M puts the next card (the bears) in front of C.

76x

M Say, "black bear."
C Black bear.
M Yeah. Black bear. These are wunnerful black bears. . . . (Reads from card incorrectly) "Walk on entirely hind foot. Has strong--"

C reaches for the bear card. M taps it. C does not pick it up. C takes the others one by one and puts them on the table.

C Cat.
M "can teeth." (Card says "canine teeth.")

C glances at M and continues putting the cards down.

77x

C Cat. . . .

C holds a card out, shows it to M. She doesn't look at it, but is still reading the bear card. M taps the bear card and asks C about it.

M What is this? (taps card on table)
C Huh?
M What is these?
C Cat.
M Bears. What is this?
C Put down.
M Po-ly, poly (sing-song). What is that? (taps card)

C nods. He grabs a card and looks at it intently. M holds up the skunk card, showing it to C.

78x

C Uh.
M That's a skunk.
C Kunk.
M Say, "skunk."
C Ku-nk.
M What is this? . . . What is this, (C's nickname)? That's a deer.

C puts his card down on top of the skunk card. M picks up the next card (the deer). She points to the deer. It is upside down.

79x

M See those horns? Hmm? The baby see the deer? That deer really hook, won't he? Ole Santa Claw deer. Ole Santa Claw had no reindeers.
C (??).

M looks at the back of the deer card, then turns it over. C glances at the deer but picks up the other cards. M has shown all of them. M starts picking up the cards too.

80x

M (Coughs) Huh? Don't you know Santa Claw comes around with three deers? Leading 'im in the wagon? Say, "wag-gun."
C Wag-gun.
M Santa Claus.
C Santa Claus.
M Come and see me.

C and M each have about half the cards. C gets down to get a card he dropped on the floor. C puts the cards in his hand. M uses a sing-song voice, trying to get C to repeat words after her.

81x

C Say me.
M Yeah. There's Santa Claw gonna bring you some toy. . . .

(C exits)

M Gonna bring you some toy. (C's nickname). You gonna tell Santa Claw bring you some toys? Won't be long 'fore Santa Claus be here.

82x

M . . . . . Lessons. Now let me have it, Lemme show you. I'm ask ya example'. That is this? (C enters.)

(Rest of Tape.)

116/117

MOTHER-CHILD INTERACTION

Subject #42, 9-16-66

Task V. Animal Cards

Mother-Child Transcription	Observer Transcription
66x	
O These are some cards of animals that I don't think (C's name) will know much about, and I--I want you to tell her about the animals, and the names of the animals are on the back if you want to look.	
M Yeah (laughs).	
C Mother? (O exits)	
67x	
M (Low) Cougar. . . . Skunk.	
C Coug. What's diss?	
M (Low) Deer.	
C What'd diss?	
M (Low) Possum.	
C Cooper. Coug—	
M That's a deer.	
C Deer.	
M Uhm.	(O returns)
C Goodeye (??).	
M Sea lion.	
68x	
C (Whispers) Sea lion.	M and C have spread the cards
M Are you ready? Now. . . . . OK. You know what that is?	out on the table. C has one in her hand. M takes it and puts it on the table.
C No.	
M That's a skunk.	M spreads the cards out fur-
C A sk—a skunk, kunk got.	ther. C grabs another card.
M 'At's a skunk.	
69x	
M They live out—	C lays one card down and picks
C (Interrupts) What's this?	up the wolf card.
M (Continues)—in the woods.	
C A gog (dog).	
M That's a--no, it's not a dog, it's a wolf. It looks like a dog but it's not. It's a wolf.	
C Woof.	
M Uh huh. It's a gray wolf. . . .	C flops the wolf card down.
70x	
C What is—	M takes the wolf card, puts it
M (Interrupts) You know what this is?	aside, picks up the deer, hands it to C. C turns it over, looks
C What?	at the back.

M That's a deer.
C A deer.
M Uh hm. And where do deers live? . . . (Low) You know Rudolph?
C With Santa Claus.
M Yeah, they--Santa Claus ride reindeers, they look like deers. That's an opossum.

M takes the deer card from C and puts it on the table.

M lifts it up so that C can see it.
They put the deer over on the pile with the others.
C is looking at the opossum.

71x

C An opossum.
M And all the baby--. . .
C An opossum.
M Opossum. Uh hm.
C What's this?
M That's a--you know what that is. You see those all the time. That's a squirrel.

C turns the card upside down.
M turns it over and puts it with the cards already seen.
C grabs another card.

M takes the card, then puts it back in C's hand.

72x

C Squirrel.
M Uh hm. And this is a cougar.
C Laddit.
M & C (together) Cougar.
M It looks like what?
C A lion.
M It looks like a lion, but it's a cougar.
C Here's a lion. . . . Dere.

C puts the squirrel card down.
M brings the cougar card over.
C picks it up. M also has her hand on it.
M tries to take it to put it down but C does not relinquish it immediately.

73x

C It look like a couper, too. Ah! Wait!--
M (As C speaks) This--
C --I sawd this already.
M Here. This is a sea lion.
C Sea lion.
M Uh huh. They're like seals.
C (As M speaks) Sea lion.
M Seals.

They put the cougar card down.
M reaches over, pulls the sea lion card closer to C. C holds it with one hand, and M holds it with one hand.
M tips the card up to look on the back, then lets it down.

74x

M They're like seals.
C Yuh. Sea lion.
M Now, do you remember any of what this--what are these? . . . What is that?
C Wooks.
M That's a bear! . . .
C A bear.

C turns the sea lion card over again. Then they put it down on the table.
M draws the bear card over.

C looks on the back of it.
C puts it up and down, not paying much attention to it.

75x

M Uh hm. That's two bears. Black bear.
C Black bears.
M Uh hm.
C Black bear, black bear. . . .
M Which one do you like best?

M looks on the back of the card and puts it down again.

C is looking at some of the other cards.

C Diss! C pats the wolf card.
M And what is that?

76x

C . . . Ohsits.
M A wolf! That's right!
C A wolf! (O exits)
M You like the wolf best?
C Uh huh. . . . What's this?
M That's the skunk.
C A kunk!
M Uh huh.

77x

C . . . A beer!
M A deer.
C Deer. (Noises)
(O enters)

(End of Task)

MOTHER-CHILD INTERACTION

Subject #9, 8-20-66

Task VI. Form - Car

Mother-Child Transcription	Observer Transcription
104x	
O This is something I want you to fill out that gives us some information about her.	
105x	
O (To C) Here, you play with this while your Mommy is writing. (O exits)	
106x	(O returns)
. . . . .	M is writing left handed. C runs the car back and forth while she talks to M.
C Mama, that lady say you can scribble. You can scribble, huh?	
M Uh huh.	
107x	C manipulates the car. She lifts it up, runs it on two wheels, holding the other end up. M concentrates on the form. C puts the car down on her lap.
(Silence)	
108x	C brings the car up over the table top slowly, runs it fast across the table, picks it up. C starts talking to M.
(Silence)	
C Mama, can't you talk all these toys, that lady can take all these to her house and __(??)__. Open this.	M does not answer.
109x	M seemed to be listening to C but she did not answer. C whispers. She hits the car, glances at M. No response.
(Silence except for C whispering)	
110x	C gets up on her knees, looks at M's form. M answers C and C sits back down.
C Mama, what you writin'?	
M I'm tellin' them somethin' about you--your name, where you was born.	
111x	C has the car down on her lap. She's doing something down on her lap, her head resting on the table edge. C looks up.
(Silence)	
C (Whispers) Take this __(??)__.	
112x	C looks around the room, back down again. She's doing something. M pays no attention. C puts her head back down. M looks down at C.
(Silence)	
C Mama, look it (whispering).	
113	

113x

M glances back at her paper after glancing at C. M reads the lines. C talks to M.

C Mama, where's the lady goin'? Maybe she gonna (??).

114x

M looks at C briefly.

C I want to use the bathroom.
M We just did, lover. Now you just wait a minute.

115x

M turns back to the form. C points as she talks about turning. C looks around the room.

(Faint sounds)
C That you say. Turn that way--there a bathroom and a--don't turn that way--just turn that way.

116x

C points at one wall, turns, points at another wall. M nods but doesn't look at C. M keeps on writing.

C And you'll see the bathroom, and there's a white bathroom. Mommy, I goin' there and you (??).

117x

C manipulates the car as she talks. M smiles but doesn't answer. M erases, then writes.

C Mama, I just (??) go bathroom. Mama, I have to fix this. Oh, what did the man take us to car?

118x

M looks over at C, then back at the form. M responds to C.

M Hm?
C What do man take us this?
M Hood?
C Huh?
M The hood?
C (Whispers) I want to take it (??).

119x

C sits back. She moves the car across the table.

C Sit down, look it at. Sit down, look it at. Sit down. This car goin' burn (emphatically). Look it at.
M What color is it?

120x

M speaks without looking at C.

C runs the car across the table several times, as M chats. M glances at C out of the corner of her eye, then turns back to the form.

C Red.
M What color are its wheels?
C Black.
M (??) little red, didn't it?
C Watch diss.

121x

C hurridly runs the car across the table. M smiles slightly but doesn't look. She smiles as she writes.

C (Whispers) We goin' ride back. (??).

122x

C still manipulates the car. C and M talk to each other but M does not look at C.

C Ma, where's the telephones?
M She put them up.
C Maybe she comin' to get--

123x

C is whispering.

C (Whispers) Candy--candy--candy candy--candy.

124x

C (Sings out loud) Candy--can--candy--can--can--can--candy. Remember I went to this school?

C chants. M pays no attention to her. C asks a question. M nods.

M Uh huh.

125x

C Who took me? Who took me to school?

M Some lady.

C Who?

M (??).

C The other one gonna take us home, huh?

M looks over at the observation mirror and smiles.

126x

M Uh huh.

C Huh, Mama, huh, Ma?

M Yes.

C What you writin'? Mama, let's go.

M looks over and nods, then goes back to her paper. C looks over, gets close to M's pencil, looks at the form.

127x

C You can skip a lot a words. (Whispers) Baby--baby.

M moves the pencil and lets C look at the page. M smiles.

128x

(Silence)

C gets down on the floor to do something.

129x

M looks to see what C is doing. C gets back up. M straightens the table cloth that C messed. C starts running the car on the table. M reads the form.

C My car (blowing noise). Look it that, Mama, get it.

130x

M (C's name), have you been to the beach? . . . Yes, you been to the beach.

C Get it--get that car.

(O exits)

131x

C Mama, what that teacher say? Sit down right here? (Whispers) Sit down, sit down. Here she comes.

(O enters)

O I have a present for you to take home with you. Want to unwrap it? OK?

C Can I open it?

O Yes, you can open it.

M Did you say thank you?

C Thank you.

(The End)

MOTHER-CHILD INTERACTION

Subject #16, 8-26-66

Task VI. Form - Car

Mother-Child Transcription		Observer Transcription
	99x	
O Now, this is a form I'd like to have you fill out about him. And he can play with the car while you're doing that, and I'll be back in.		
	100x	
(O exits) M Do you want ___(??)___? (C's name)? (Inaudible comments)		
	101x	(O returns) C holds the car in both hands down in front of him. He just looks at it. He manipulates it a little. M's busy writing. M doesn't look at C.
. . . . .		
C I take this car home. M Huh uh (no).		
	102x	C runs the car back and forth, then out across the table. He makes the car go slowly. He turns it around.
C (Makes sounds imitating car motor)		
	103x	M pays no attention. She's filling out the form, looking solemnly down at it. C runs the car back and forth.
C (Car motor sounds)		
	104x	C concentrates on the car. He stops it and manipulates it with his fingers. He makes sounds with his mouth. He runs it back and forth, peering down at it.
C (Car motor sounds)		
	105x	C pays no attention to M, nor she to him. C glances over at M's form. M doesn't notice.
C (A little singing)		
	106x	C turns the car around and looks at it intently. He runs it about. M makes no response.
C (A little more singing) Who gave me this car, Ma? Who gimme this car, Ma? Who gimme this car?		
	107x	
C (Car motor sounds)		

C	Beep, beep, beep, beeeep. (Car motor sounds)	C moves the car back and forth.
	108x	
C	(Car motor and other sounds)	C moves the car back and forth slowly. M makes no response. She's one-third the way down the page of the form.
	109x	
C	(Singing and car motor sounds)	M puts her hand up to her nose, then back down to the paper. C still plays with the car very slowly, making car sounds.
	110x	
C	(Chanting-singing and car motor sounds)	C moves the car back and forth across the table rather absently. He turns it slightly over and back. He looks down at the floor and back at the car.
	111x	
C	(Car motor sounds)	C moves the car back and forth. He glances over at what M is
C	Who is that, Ma?	Writing. No response from M.
	112x	
C	(Car motor sounds)	C moves the car back and forth again. His attention is on it. He stares intently at it with his hands on the front of it.
	113x	
C	(Car motor sounds) (Sound of car wheels)	C turns the car around. M glances at the mirror, then back down at the form.
	114x	
C	(Car motor sounds)	C still runs the car slowly, looking at it. Back and forth he goes with it on the table.
	115x	
C	(Car motor sounds) (Sounds of car wheels)	C moves the car more slowly. Now C is quiet. He's resting
M	(Erasing sounds)	his head on his arm.
	116x	
M	(Erasing sounds)	C looks over at M. He jabbers
C	Singing and nonsense sounds)	to himself as he examines the car.
	117x	
C	(Car motor sounds)	M is near the end of the form.
M	(Erasing sounds)	She has made no response to C during this period.
		(O exits)
	118x	
M	(Erasing sounds)	
C	(Car motor sounds)	
	(O enters)	

(The End)